TOOL UP WITH *Toledo Advantages* FOR THREADING 1" TO 2" PIPE!

Save Job-Time... Reduce Costs

Take the short and easier way to get perfect 1" to 2" threads—use a genuine TOLEDO Pipe Tool!

Many thousands of better mechanics today have used a *Toledo 1A Ratchet Threader* for years—a tool that's famous for efficiency, economy and dependability.

Others prefer the plus features of a Toledo 1BR Ratchet Threader . . . similar to the 1A, but also has pipe holder with broad faced chuck jaws easily set by wing-head thumb screws. Assures accurate centering and firm grip.

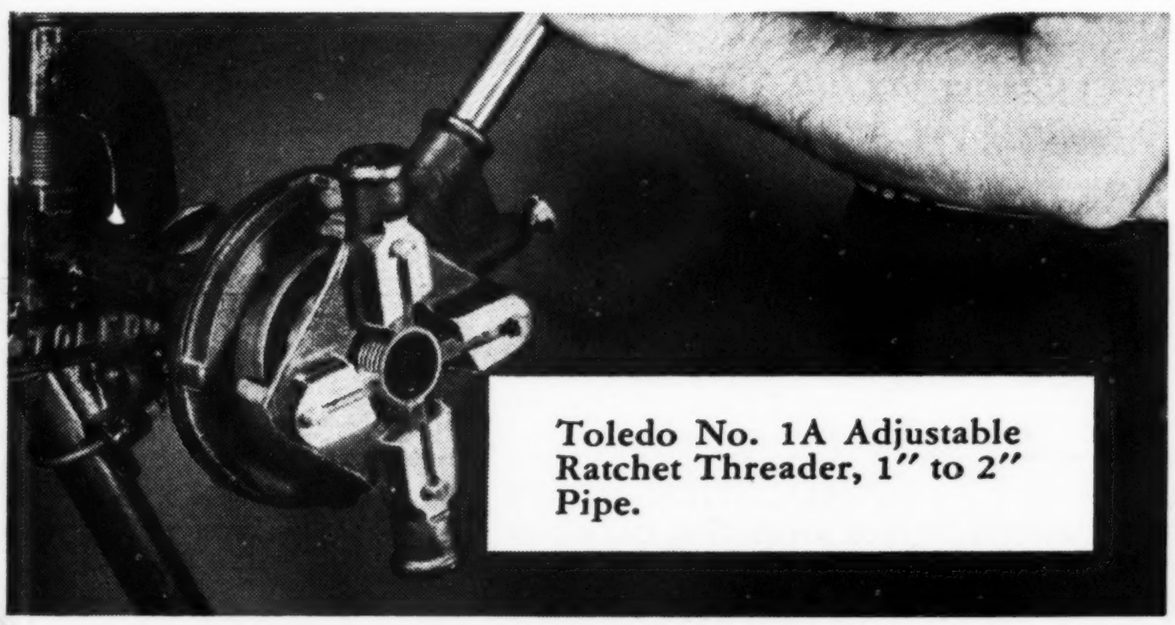
If you want a self-contained tool—use the finest of 'em all—Toledo SIMPACT! Threads clean and fast . . . one set of high speed steel dies does work of four . . . no loose parts . . . sizes changed instantly.

Whether it's hand tools or power equipment—get time-proven TOLEDO advantages for every pipe fitting requirement! The Toledo Pipe Threading Machine Co., Toledo, Ohio. New York Office: 165 Broadway, Room 1310.

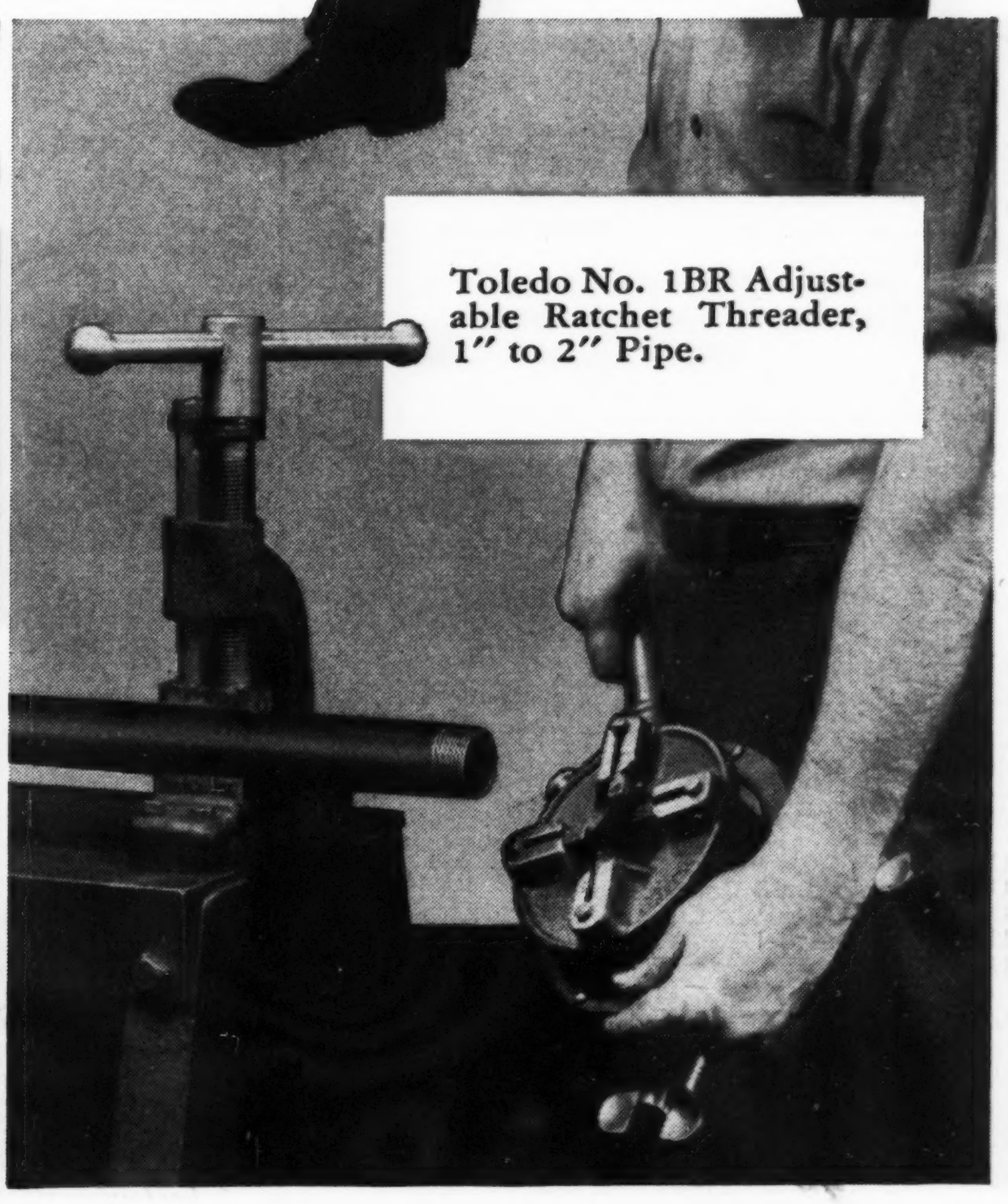
RELY ON THE LEADER

TOLEDO

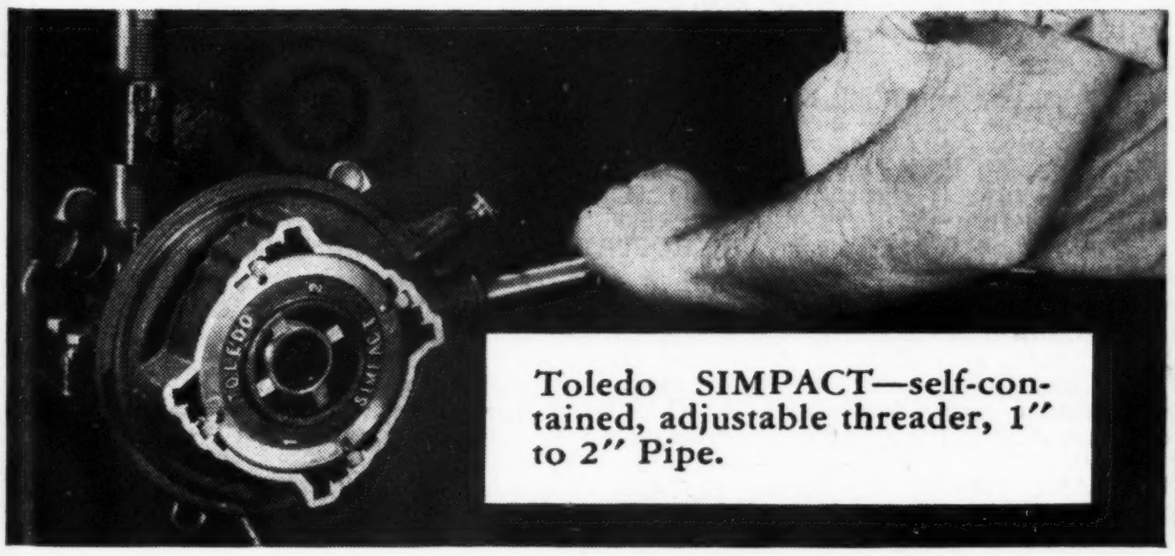
FOR PRECISION PIPE TOOLS



Toledo No. 1A Adjustable Ratchet Threader, 1" to 2" Pipe.



Toledo No. 1BR Adjustable Ratchet Threader, 1" to 2" Pipe.



Toledo SIMPACT—self-contained, adjustable threader, 1" to 2" Pipe.

ADVERTISERS

American Meter Co.	12, 13
American Radiator & Standard Sanitary Corp.	47
Anchor Petroleum Co.	63
Automatic Firing Corp.	—
Automatic Products Co.	62
Barrett Division, The	83
Blaw-Knox Co.	—
Bryant Heater Division	51
Caloric Stove Corp.	—
Cast Iron Pipe Research Association	6, 7
Chaplin-Fulton Manufacturing Co.	14
Cleveland Trencher Co., The	—
Columbia Gas System, Inc., The	72
Connelly, Inc.	68
Cooper-Bessemer Corp., The	93
Crane Co.	18
Detectron Co., The	70
Detroit Brass & Malleable Works	—
Detroit-Michigan Stove Co.	—
Dowell, Inc.	75
Dresser Industries, Inc.	8, 9, 20, 50
Dresser Manufacturing Division	8, 9, 20
Empire Stove Co.	55
Fisher Governor Co.	3
Fisher Research Laboratory, Inc.	92
Fluor Corp., Ltd.	87
Gas Appliance Manufacturers Assoc.	53
Gas Machinery Co., The	22
General Controls	Third Cover
Goldak Co., The	96
Grayson Controls	—
Greenlee Tool Co.	—
Hardwick Stove Co.	65
Hays Manufacturing Co.	60, 61
Heath Tree Service, Inc.	—
Henderson Furnace & Manufacturing Co.	64
Hydrauger Corp., Ltd.	—
Jaeger Machine Co., The	69
Johns-Manville Corp.	—
Kaiser Steel Corp.	91
Lancaster Meter Parts Co.	56
Master Tank & Welding Co.	95
Milwaukee Gas Specialty Co.	49
Minneapolis-Honeywell Regulator Co.	—
Mueller Co.	17
National Tube Co.	—
Natural Gas Odorizing Co.	16
Nordstrom Valve Division Rockwell Manufacturing Co.	11
Norton-McMurray Manufacturing Co.	48
Norwalk Valve Co.	69
Oklahoma Contracting Corp.	88
Oronite Chemical Co.	24
Pacific Gas Corp.	68
Peerless Manufacturing Corp.	66
Perfex Corp.	57
Phillips Petroleum Co.	26
Pittsburgh Equitable Meter Division Rockwell Mfg. Co.	Front Cover, 4, 5
Price Co., H. C.	85
Reliance Regulator Division	Second Cover
Reynolds Gas Regulator Co.	58
Robertshaw-Fulton Controls Co.	—
Roots-Connersville Blower Corp.	50
Roper Corp., Geo. D.	—
Safety Gas Main Stopper Co.	—
Security Manufacturing Co.	52
Servel, Inc.	59
Sharples Chemicals Inc.	10
Skinner Co., M. B.	81
Sprague Meter Co.	Fourth Cover
Stacey Manufacturing Co., The	67
Standard Pipeprotection, Inc.	—
Stauffer Manufacturing Co.	66
Superior Meter Co., Inc.	68
Titan Valve & Manufacturing Co.	—
Toledo Pipe Threading Co.	1
Trojan Construction Co.	92
U. S. Pipe & Foundry Co.	—
United Engineers & Constructors, Inc.	15
United Petroleum Gas Co.	70
United States Steel	—
Utility Control Co.	—
Vulcan Proofing Co.	54
Walworth Co.	77
Western Supply Co.	—
White Products Corp.	67
Williamson, Inc., T. D.	94
Worthington Pump & Machinery Corp.	78, 79

GAS

REG. U. S. PATENT OFFICE

A JENKINS PUBLICATION

Twenty-Sixth Year of Publication

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COMMENT

Highlights 19

Thermally Thinking, *by Edward Titus* 21

Technical Trends, *by Guy Corfield* 23

Promotional Notes and Notions, *by Stanley Jenks* 25

ARTICLES

15 Years of Natural Gas 30 Miles from 42nd Street, *by Charles L. Hulswit* 27

Gas Makes Glass for Owens-Corning 30

An Efficient Design for Street-Fitting Trucks, *by Vernon Damm* 32

Electrical Anti-Freezing for Gas Holder Cups, *by W. R. Garrett* 33

Brooklyn Overhauls Holders 34

ConEd Designs New Instruments 35

Postscript to Television Use 36

Meter-Cleaning Made Easy With Automatic Methods 37

Gas Firing Helps "Heirlooms of Tomorrow" Earn Share of U. S. Chinaware Market 38

GAS' Digests 40

Industry-Wide Ignition Test Programmed 43

Pipeline Section 71

Conversion of a Cooling Tower, *by Raymond W. Todd* 73

Automatic Booster Maintains Peakload Pressures for United, *by H. W. Egger* 80

X-Ray on the Mississippi, *by R. R. Hughes* 84

The Common Carrier, *by Bill Clark* 86

Pipeline News 90

DEPARTMENTS

Associations	44	People	61
Calendar	46	New Products	66
News	48	Sales Slants	68

PUBLICATION OFFICE

198 SOUTH ALVARADO ST., LOS ANGELES 4, CALIFORNIA • Phone DUNKIRK 7-4337

BRANCH OFFICES

CHICAGO, DAVID CARMEN, Manager, 1064 Peoples Gas Building, WAbash 2-2589
NEW YORK, JOSEPH M. DEMATTHEW, Manager, 11 West 42nd St., CHickering 4-1969
TULSA, CRAIG ESPY, Manager, 1341 S. BOSTON, 2-5726

EXECUTIVE

JAY JENKINS, President and Publisher — JAMES E. JENKINS, Secretary Treasurer

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Highlights

Manufacturers are rushing to book space for the 1950 GAMA exhibition. In the first week, 100 signed up for the Oct. 2-6 show, to be held in conjunction with the AGA Convention in Atlantic City. That's a new record, according to GAMA's Harold Massey.

Despite a net income drop, Columbia Gas System is doing a whopping business. The firm's sprawling operations now have a 2.2 billion-cu-ft-per-day capacity, up 30% from a year ago. Highest sendout during this heating season has been 1.63 billion cu ft. More than 115,000 new heating installations were put in last year.

End in sight in Piedmont hearings. FPC's huge file in the proceedings involving the application to build a line to serve Virginia and the Carolinas may soon be closed. The company says it has a gas contract deadline of March 31, and has been urging the commission to render a decision.

Gas regulatory procedures on stage again. Four moves affecting governmental control of fuels are afoot. The House Interstate Commerce Subcommittee has been hearing arguments on the Crosser bill to extend FPC jurisdiction to cover issuance of securities. Sen. Robert Kerr, aided by fellow-Oklahoman Elmer Thomas, is trying once more to push through a bill exempting independent production and gathering from FPC rule. Local distribution is not covered in Kerr's bill, but Sen. Langer has authored another amendment to exclude distributors whose entire operation is confined to one state. The FPC also has revealed its intention to force competitive bidding on securities issued by power companies now under its thumb.

Chattanooga (Tenn.) Gas Co. may be sold. Equitable Securities Corp. is considering its purchase from Southern Natural Gas Co. But it might hold it for only a year, while conversion is taking place. The city of Chattanooga is also interested in the propery.

Virginia sets up gas and oil control machinery. The state senate has passed a bill which would set up a board to regulate and develop these industries.

New England hearings to start this month. Northeast Natural's case is on the FPC docket for March 7, while its competitor, Algonquin, has formally filed its application to take natural gas to the northeast.

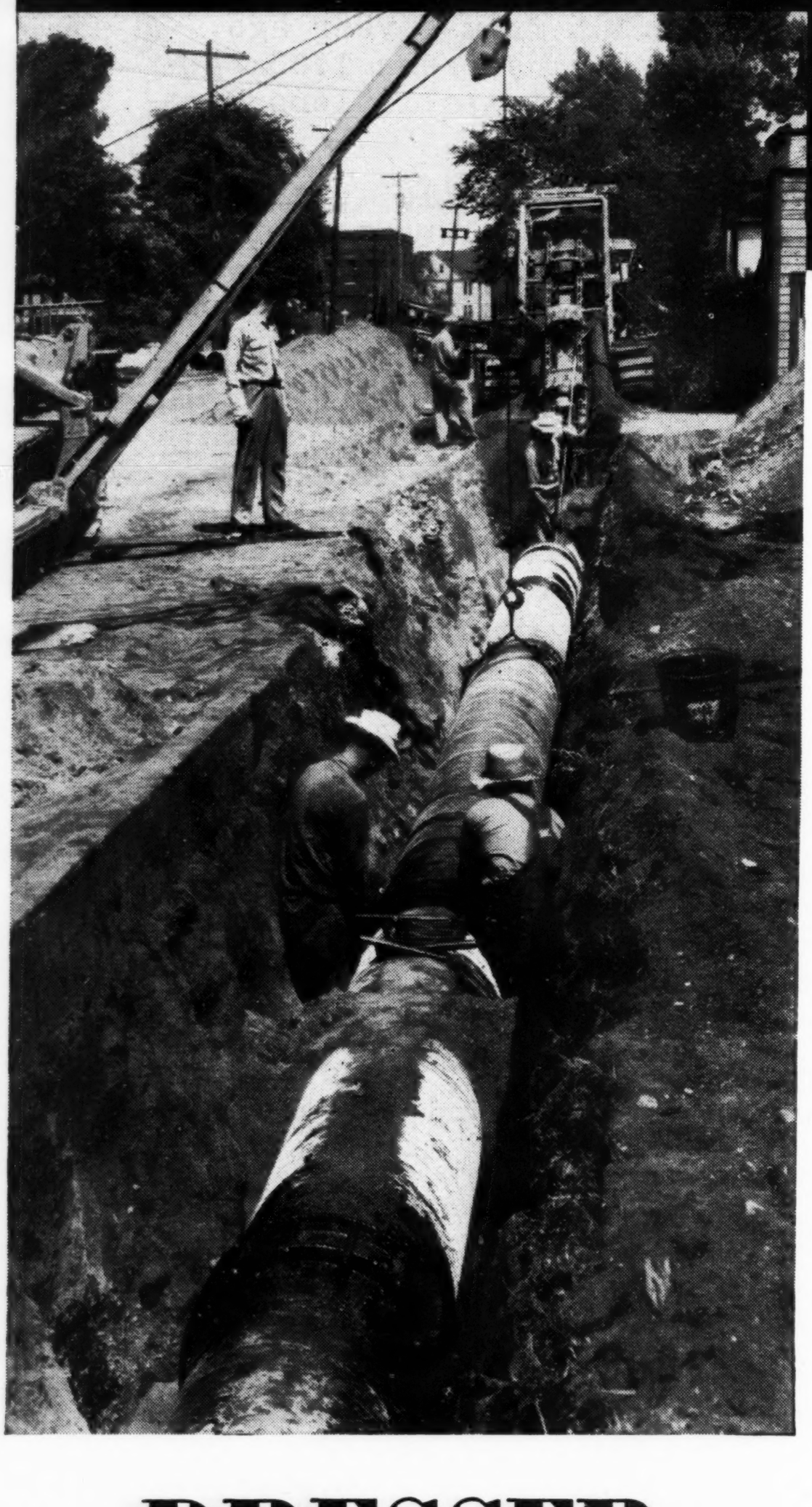
Ohio Fuel Gas deadens bill-paying pains. In Columbus, the company has set up a drive-in service where customers may conveniently make remittances.

Entire Texas Gas Transmission line now in operation. Although it went on stream in a modest way Dec. 22, the big Texas-Ohio line last month started delivering in earnest as far north as Middletown, Ohio.

In Minneapolis . . .

647,656 feet of Dresser-Coupled steel mains

3″ thru 30″



Since changing over to natural gas, The Minneapolis Gas Co. has laid almost 123 miles of steel mains in sizes 3″ to 30″.

Dresser Couplings were used on all lines.

In its aggressive policy of bringing the benefits of gas to more people, this utility was quick to discover that Dresser Couplings make for speedy and economical pipe laying, and keep maintenance costs at a minimum.

When you use Dresser Couplings, pipe joining can keep right on the heels of the ditcher, and backfilling can follow immediately. No long traffic tie-ups, no stalling around because of weather.

And with Dressers, you get uniform joints that stay "Flexible-Tight"—permanently—even under the pounding of downtown traffic.

For complete information and expert follow-through, consult your Dresser Sales Engineer or write to our Bradford, Pa. headquarters.

DRESSER

"FLEXIBLE-TIGHT" COUPLINGS

Dresser Manufacturing Division, 59 Fisher Ave., Bradford, Pa. (One of the Dresser Industries) • In Texas: 1121 Rothwell St., Houston
In Canada: 629 Adelaide St., W., Toronto, Ont. • Sales offices: New York, Chicago, Houston, San Francisco

EDWARD TITUS

THERMALLY THINKING

Pipelines and Trolley Lines

SUPPOSE YOU HAVE A PIPELINE. Are you then, whether you wish it or not, in the same situation as if you operated a train, or an interstate scheduled airline or the Toonerville Trolley?

This is the common carrier question.

In all the rush of the industry to digest and interpret such matters as the East Ohio decision, and the attempt of the Federal Power Commission to assume some jurisdiction over issuance of securities, it would appear the common carrier question has not received the attention it deserves.

Can Tom, Dick or Harry shout "Hey Bud!" at you and insist on climbing aboard your public trolley-pipeline, even if it involves figuratively or literally hanging on to the running board? And having climbed aboard, can Tom, Dick or Harry go about and sell the gas they have carried by any method he pleases, economic or uneconomic, just as if he had transported a load of spinach over the public highway?

Some of these ideas sound pretty absurd, and we can't imagine either Congress or any executive department in Washington allowing things to go quite to that extreme on a large scale. Still, if legal loopholes are present, and the government has the power to apply the common carrier principle to a degree that would appear to be against the interests of both the gas industry and its customers, we suggest that here is one more thing that Congress should try to straighten out.

The question is brought to a head by the petition to intervene in the matter of pipelines to California filed early in February by Interstate Natural Gas Co., a Nevada corporation with offices in Los Angeles. This company, as far as we can learn, has no connection with any other of similar name. They have petitioned to intervene in the proceedings on the joint application of El Paso Natural Gas Co., San Juan Pipe Line Co., and Pacific Gas and Electric Co.

Half of Capacity

Interstate asks that the above companies be required to allocate 50 per cent of their pipeline capacity to transportation of gas as a common public carrier.

The whole proposition is based on a law under which to some extent a pipeline which passes over public domain becomes a common carrier.

It appears that most pipelines in the West do pass over public lands and thus are subject to this hazard. Most in the East, however, do not pass over public land.

What will be the status of pipelines from Canada, if and when they bring the Dominion's gas to United States markets? Doubtless these lines will cross public lands.

The same will probably hold for new discoveries of gas in the mid-Northwest section of the United States.

Where does the power of the federal government end, in the matter of controlling and interfering with normal ways of doing business? Not many months ago, we saw how it was possible for the commission in effect to nullify agreements made between one gas distributing company and a pipeline, and order the gas distributed to other companies.

We also have seen the commission upheld by the Supreme Court in its assumption of power to regulate East Ohio, operating entirely within one state. At the production and gathering end of the business, an earlier decision has given the commission extensive powers if it chooses to use them. And legislation to define and limit the extent of control at both ends of the line is still bogged down in Congress.

Now the commission is claiming additional jurisdiction over issuance of gas securities.

Connection with East Ohio

To return to the common carrier question—

Some profess to see a connection between the East Ohio decision, giving the FPC jurisdiction within a state, and the common carrier question. They say that if the common carrier idea is carried far enough, combined with the East Ohio decision, it might mean that people with gas for sale almost anywhere could hitch-hike onto a pipeline and market the gas, if the FPC saw fit, to customers almost anywhere. The resulting confusion is easy to picture.

Could this happen in Brooklyn?

No. People in Ohio don't seem worried about the common carrier issue either. But if Brooklyn were located in the western half of the country, out in the land of public lands, the situation would be different.

Interpretation of the existing law in this matter has been rendered with apparent finality in the case of Montana-Dakota Utilities Co. This company, whose lines cross public lands, was declared a common carrier, and the courts upheld the commission in a common carrier rate case involving this company.

Montana-Dakota listed as one of eight objections the fact that no provision was made in the FPC order for minimum shipments.

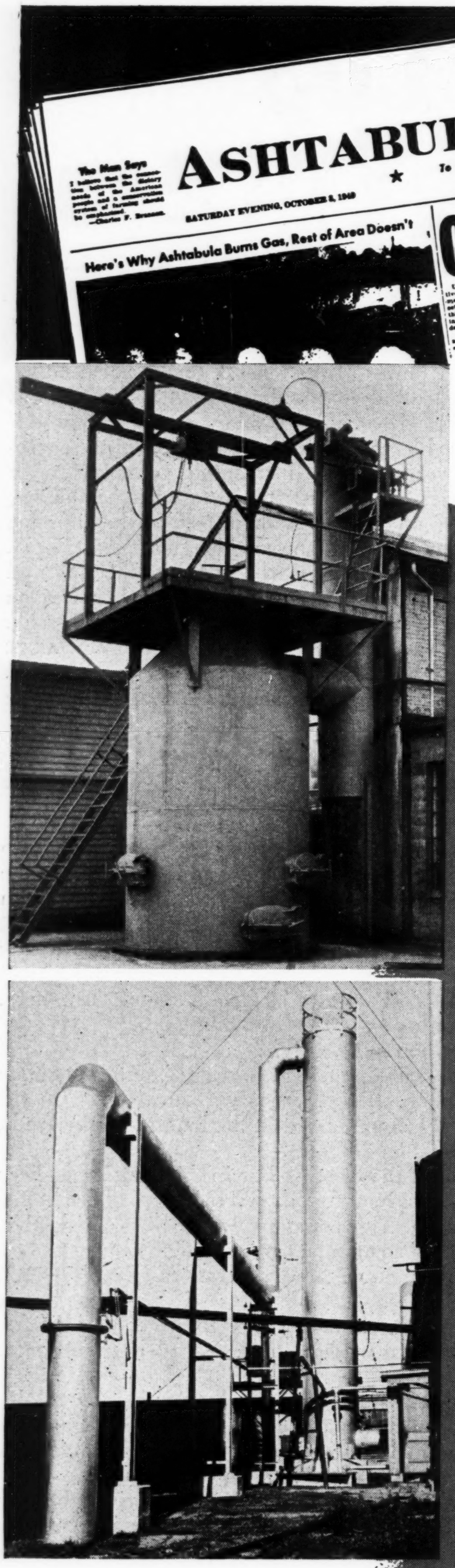
"This is a speculative conjecture," said the court, "that householders—for instance, residents of North Dakota—might purchase small gas producing plants in Montana and ship gas to themselves for their own use."

The court said there was no evidence this could happen.

The spectacle of a householder flagging a pipeline and sending his own heating and cooking gas over its line is obviously absurd.

But the matter of whether a company out of a clear sky can flag an existing or projected line and successfully demand that half its capacity be devoted to common carrier purposes—along with plenty of other uncertainties about how far federal jurisdiction and interference can go—should be settled, and settled promptly—preferably by Congress.

(For further discussion of the common carrier question, see page 86.)


The Man Says
I believe that the preservation, wherever the liberty needs of the American people, and a continuation system of farming should be emphasized.
—Charles F. Brannan.
ASHTABULA STAR-BEACON
To Dispense Truth is to Defend Freedom
SATURDAY EVENING, OCTOBER 8, 1949
50TH YEAR FIVE CENTS
Sunny and Warm
Here's Why Ashtabula Burns Gas, Rest of Area Doesn't
GAS PARLEY CONTINUES

YOU TOO CAN

Depend On...

GASMACO EQUIPMENT

for STAND-BY or PEAK REQUIREMENTS

These pictures show why 13,000 consumers of the Lake Shore Gas Company in Ashtabula, Ohio, were able to continue using "coke oven" gas during a recent emergency period of several weeks.

Reforming equipment manufactured by The Gas Machinery Company had been installed in anticipation of the town's growth, to take care of peak demands and short-time emergencies. *This emergency* grew into weeks, yet service continued throughout the entire period.

In the installation pictured, LP vapors were reformed in a blue gas generator, cooled in a spray scrubber, and enriched to the standard heating value of the coke oven gas normally distributed.

100% interchange was effected with complete satisfaction.

GASMACO equipment can be your guarantee of uninterrupted operation—continuous service.

We also offer:

- **Continuous generators with catalytic reforming for LPG or gasoline feeds.**
- **Regenerative oil gas apparatus for high carbon oils or light oils.**
- **Oil gas equipment for use with light oils only.**
- **Conversion of existing generating equipment to oil gas for either light or heavy oil.**

Consult us today.

THE GAS MACHINERY COMPANY

16108 WATERLOO ROAD
CLEVELAND 10, OHIO

Designers • Fabricators • Erectors
Gas Plant Equipment and Industrial Furnaces

GUY CORFIELD

TECHNICAL TRENDS

Robots in Industry

IN A RECENT ADDRESS to the Assn. of Professional Engineers, Dr. O. M. Solandt, chairman of the Canadian Defense Research Board, stated that robots will replace the fighting man in a future war; that man's role in a robot war will be reduced to that of an engineer rather than a front line combatant and he will merely have to do more complex and difficult (though possibly safer) jobs in devising, building, controlling and repairing the robot machines.

Be this as it may, it would seem that industry is already approaching this position, as evidenced by the advertising announcement, in a current technical journal, by Industrial Process Equipment Engineers of Newark, N. J., to the effect that they are prepared to engineer completely automatic processing plants, by "IPE Robotization," which they state is "a giant step beyond conventional automatic process-variable control. (It) creates a plant which is set in motion, scheduled for daily output, and regulated by master control switches. All other plant operations are performed by standard control instruments integrated with highly engineered systems of electronic and pneumatic interlocks."

They claim further that for existing plants and processes and for those in the design stage, IPE Robotization offers these positive advantages:

1. Lowest possible labor costs.
2. Highest attainable product quality.
3. Uniform and continuously reproducible results.
4. Greatest possible savings of raw material.
5. Elimination of possible human error.
6. Maximum efficiency in use of utilities.
7. Elimination of breakdown due to overloading.
8. Automatic checks on instruments.

Standard Samples

ONE OF THE MANY useful services which the National Bureau of Standards performs for science and industry is the supplying of standard samples, i.e., samples of materials which have been carefully analyzed for chemical composition or whose physical properties have been precisely determined with respect to a specific chemical or physical constant such as melting point, viscosity, index of refraction, heat of combustion, color, reflectivity, particle size, etc. These materials are designed for use in controlling chemical processes and in maintaining the accuracy of apparatus and equipment. Obviously these samples are of great assistance to the research and control laboratory technician in giving him assurance that his instruments are in calibration and his analytical and testing methods are accurate; many of them are also invaluable as "referees" between seller and buyer of commercial products. Particularly when doubt or controversy arises, there is great satisfaction in being able to check against or compare with a corresponding or similar material that carries the label and prestige of the National Bureau of Standards.

The first standard samples were prepared as early as 1905, and the number and variety have grown until there are now 475 available. They include metals, such as alloy steels; pigments, for paint colors; hydrocarbons, such as are used in petroleum and synthetic rubber technology (169 now available); cement, for standardizing fine-mesh sieves; pH values, expressing acidity or alkalinity of aqueous solutions; colors, for household appliances, bathroom accessories, etc.; dyed paper, for calibrating lamps that test the ability of textiles and fabrics to resist fading; radiation lamps, for standardizing thermopiles; gloss surfaces, for checking reflectance of paints, paper, etc.; and, most recently, radon, gamma-ray and beta-ray standards for calibrating instruments for detection of these radiations. A complete list of available NBS standard samples is issued periodically and can be obtained free of charge from the National Bureau of Standards, Washington 25, D.C. A total of 22,000 samples was issued to users in the U. S. and abroad during 1949.

In many instances these samples are developed as the need arises in industry, and with the cooperation of industry in expressing and demonstrating the need and selecting and providing the source materials. A development that is now under consideration, of direct interest to the gas industry, is the provision of cylinders of *methane*, or *natural gas of high methane content*, certified as to *composition* and *heating value*, for the calibration of calorimeters operating on natural gas or other fuel gases of comparable composition and Btu. The value of this standard gas, particularly in areas where rates are related to gas heating values, would seem to be obvious. This standard gas could also be used for calibration of *gas specific gravity* measuring instruments and would therefore be of value in maintaining the accuracy of one of the major components of orifice meter measurement. It would materially assist in the furtherance of this program if those interested in it would *write to the National Bureau of Standards* and request its adoption.

Interchangeability

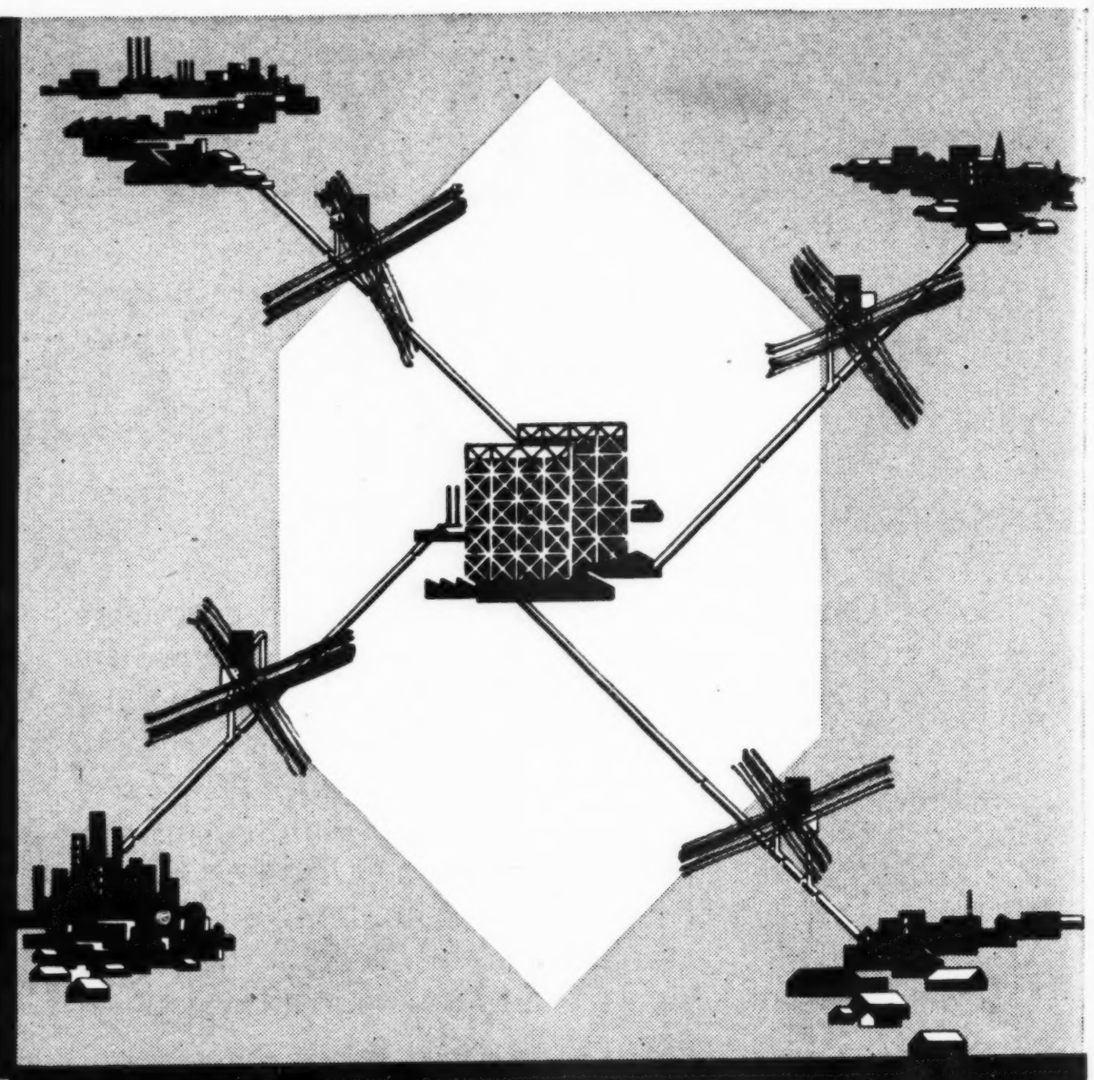
A PAPER OF INTEREST to those studying the interchangeability of fuel gases, entitled "Predicting Burner Performance With Interchanged Fuel Gases," by Joseph Gumer of the Central Experiment Station, U. S. Bureau of Mines, Pittsburgh, appeared in the December 1949 issue of *Industrial and Engineering Chemistry*.

The prediction method presented is based on the use of a concept of boundary velocity gradients that define the flame-stability region, and the principles of air entrainment by a fuel jet. Diagrams are prepared, for any gas, of boundary velocity gradient vs. gas-air ratio, which indicates the performance of burners between blow-off and flashback; and by superimposing diagrams, the relative performance of any of two gases in the same burner can be predicted.

high potency

Calodorant "C"

Gas Odorant



ORONITE CHEMICAL COMPANY

Reg. U. S. Pat. Off.

THE NAME TO WATCH IN CHEMICALS

STANLEY JENKS

PROMOTIONAL NOTES AND NOTIONS

The Heating Load

I, FOR ONE, am not inclined to take the electric plans for home heating too lightly. In London last year, and in several British homes, I found electric inset heaters very popular and, it must be conceded, very cozy too. Of course, these were room heaters and mostly encountered in apartments. But, with multiple switches and the fact they can be used locally, they have both a practical and economic appeal.

The electric lads are recognizing their unfavorable competitive position in the primary, rather than the auxiliary, heating field. But, bless your soul, when we were developing the gas central heating load in the manufactured gas territories, we faced the fact that we couldn't compete economically with coal or oil. So we went ahead anyway on a superior service more than worth the difference. This is going to be the electric approach, and, while it has no comparable merit, there are people around enough fluorescent-minded to fall for it. Their numbers will be governed by our ability to convince them that for heating—*gas has got everything.*

Summer Comfort

THE IT-AIN'T-THE-HEAT-BUT-THE-HUMIDITY days will soon be here and, with them, the hopes that we are well organized to really hit our stride in the air-conditioning field. This is one load we need worse than a Chinese needs rice. The constantly growing winter heating load is creating a distribution imbalance that must be rectified. Gas air-conditioning is a decided step in the right direction. Economically, we have the advantage, but let's face this fact: It will take a superior brand of salesmanship to put it over. It can be done, and, what's more, it will be done eventually. Why not now?

Regimentation

THERE ARE TWO MAJOR DANGERS inherent in this federal deficit spending craze in Washington. The first is obviously that it crucifies the taxpayer, who, whether he knows it or not, pays *all* the taxes. The fallacy that corporations pay corporate taxes or the mine owners the miners' welfare funds is too prevalent. The corporations and the mine owners merely collect these taxes, which are charged to their customers.

The second major danger is that this tax burden squelches initiative and, in doing it, promotes regimentation by making the government the source and directing agent of all effort.

J. Howard Pew, former president of Sun Oil Co., and a highly successful industrialist in his own right, made a speech at the 29th annual meeting of the American Petroleum Institute last November. A copy of his speech came to my desk recently, and I heartily recommend you write Sun Oil Co., Philadelphia, for a copy. It is entitled "Progress Depends on Freedom." It is a forthright and timely warning of the menace of our socialistically-minded administration.

May I give you a sample. "With so many political witch doctors abroad in the land teaching communism, fascism, planned and dictated economies, governmental paternalism, and all the other isms, I urge you to guard well that (American) heritage and to turn a deaf ear to all their sophistries. *When a people come to look upon their government as the source of all their rights, there will surely come a time when they look upon the same government as the source of all their wrongs.* That is the history of all planned, dictated economies. That is the history of tyranny."

While this page is devoted primarily to discussing gas industry promotional activities, I offer no apology for seemingly stepping off the base path, because there is no greater promotional job facing the gas or any other industry in this election year than that of spifflicating the spenders at the polls.

Radiant Floor Heating

A COLLEAGUE OF MINE, seeking the fresher air and wider spaces of the countryside, has finally settled himself in a newly built bungalow on 150 acres, to become a part-time farmer and stock raiser.

He tells me he has had very gratifying results from the radiant heating pipes embedded in the floor. The temperature difference between floor and ceiling has never varied more than 2°F, and the system has proved very economical too.

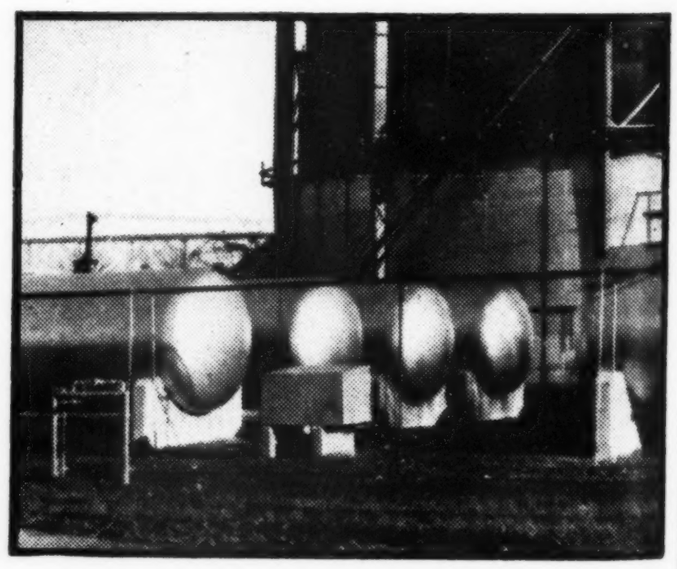
Unfortunately, he is located miles from the nearest gas mains, so we cannot give gas heating the credit in this instance, though he says that he wishes gas service were available, because he knows his heating system would be better still.

PHILLIPS LP-GAS STAND-BY SYSTEM SAFEGUARDS AGAINST CURTAILMENTS OR CUT-OFFS!

A Phillips Stand-By System enables you to meet fuel emergencies before they can cause serious loss.

Many far-sighted utilities are installing Phillips *66* Butane-Propane Emergency Stand-By Systems *now* to augment natural or manufactured gas in times of gas shortages or heavy demand. These same facilities, plus a simple reforming unit, can produce a completely replaceable gas.

You'll be surprised at how little capital is needed for a Phillips *66* LP-Gas installation. Ask our field engineer to sit down with you and talk over facts . . . *and figures!* No obligation, of course. Just write for full information.



PHILLIPS PETROLEUM COMPANY

Philgas Division **SALES DEPARTMENT** **Bartlesville, Oklahoma**

Offices located in Amarillo, Tex., Atlanta, Ga., Chicago, Ill., Denver, Colo., Des Moines, Ia., Detroit, Mich., Indianapolis, Ind., Jackson, Miss., Kansas City, Mo., Milwaukee, Wis., Minneapolis, Minn., New York, N. Y., Raleigh, N. C., St. Louis, Mo., Tulsa, Okla., Wichita, Kan.

15 years of natural gas
30 miles from 42nd street

Rockland Gas Co. is unique among gas companies in New York—although it operates within the metropolitan area, it has served natural gas to its customers since 1935. Rockland's president discusses changeover effects on the system and how they were handled.

By CHARLES L. HULSWIT

ROCKLAND Gas Co. Inc. now serves about 11,000 customers in Rockland county, New York. Rockland county is located in the New York City metropolitan area about 30 miles from Times Square. It is on the west side of the Hudson river across from Westchester county and just north of the New York-New Jersey state line.

Our territory is preponderantly suburban and residential in character. A large number of our customers commute to and from New York City daily. What little manufacturing industry we do have is light and specialized in its nature. We serve numerous small communities by means of separate distribution systems which are supplied with gas from a high-pressure transmission system through district regulator stations. Two of our distribution systems are low pressure and the others are operated at intermediate pressures ranging from 5 to 20 psi. Pressures on our transmission system during peak load periods are carried up to 70 psi.

Before 1935, we served our territory with manufactured gas produced at a stop-end retort coal gas plant located in the village of Suffern and a carburetted water gas plant located in the village of Haverstraw. These plants were interconnected by our high pressure transmission system with compressors located at both plants. On June 1, 1935, we commenced purchasing natural gas from Home Gas Co., a subsidiary of Columbia Gas System Inc., and within a month had completed the conversion of our system to straight natural gas operation.

Originally our natural gas came from the New York state Oriskany fields and was transmitted to us over a system of multiple pipelines formerly used for the transportation of oil. This pipeline system extended from Olean eastward through Binghamton to a point in our territory. Parts of this system were constructed as far back as the 1880's.

With the rapid depletion of the New York fields in 1940, our natural gas supply shifted to the Pennsylvania and West Virginia fields, the gas being carried northward from Pittsburgh to Olean and thence eastward to us through the oil lines. In 1948, the Columbia System completed and placed in operation a new line from a point on the Texas Eastern line near Coatesville, Pa., to a point on the oil lines near Port Jervis, N. Y. Since then all of the gas received by my company has been Texas gas. At the beginning of this year a new line from Port Jervis to our territory was placed in service, so that we now receive our natural gas supply from Texas over a system of new high pressure pipelines.

Some Headache Aides

I know that many companies have been wrestling with the problems of what will happen to their loads, load factors and space heating saturation after the advent of natural gas. Perhaps some figures showing what actually happened to my company will be of interest. In order to make comparisons between quantities of natural and manufactured gas, I shall state all such quantities in therms.

For a starting point I have taken the year 1934, which was our last full year of manufactured gas operation. During that year, our total annual sendout was 530,000 therms, our maximum daily load 1700 therms, and our annual load factor, 88%. Our space heating saturation, I hasten to add, was 0 and for a good reason; our rate was $2.50 per Mcf of 537-Btu gas—47 cents per therm. The total number of customers served at the end of 1934 was 3400 and the annual sendout per customer was 156 therms.

Our natural gas experience divides naturally into two periods, the period from 1935 up to the war and the period from the war to the present. From the advent of natural gas in our territory up to the present, the rate for space heating has been 7.6 cents per therm. Prior to the war this rate commanded some premium over the bare fuel costs of coal and oil. Since the war gas space heating in our territory has cost substantially less than either coal or oil.

Two-Period Story

Taking the year 1942 as the end of the first period, we find that the total annual sendout was 3,668,000 therms or 6.9 times the 1934 figure, the maximum daily load 27,500 therms or 16 times the 1934 figure, the annual load factor 37% and the space heating saturation 16%. The number of customers served at the end of 1942 was 7400, or 2.2 times those served in 1934, and the annual sendout per customer was 496 therms, or 3.2 times the 1934 figure. In 1942, the peak day was established on Dec. 20 when the average air temperature was —5°F which is unusually cold for our territory. This resulted in an exceptionally high peak and low annual load factor for that year.

During the second period, extending from 1943 to 1949, war-time restrictions against taking on additional heating business were in force until September, 1945 and New York state restrictions were imposed during 1947, 1948, and part of 1949. Despite these restrictions, gas sendout for 1949 totaled 7,811,000 therms, more than twice the 1942 figure, and the maximum daily load was 52,200 therms, the annual load factor 41%, and

Mr. Hulswit's paper was originally presented on the natural gas panel discussion, gas operating division meeting, New England Gas Assn., Boston, Jan. 18, 1950.

the space heating saturation 31%. The number of customers served at the end of 1947 was 11,000 and the annual send-out per customer was 710 therms.

For 1950, we estimate that the annual sendout will total 10,500,000 therms and that space heating saturation will reach 40%. Should we experience a day with an average air temperature of 0°F during the latter part of 1950, the load for that day will run around 94,500 therms. The total number of customers served at the end of 1950 is expected to be 12,000, and the annual sendout per customer to be 875 therms.

If our estimates for 1950 are correct, our company, during 15 years of natural gas operation, will experience a 20-fold increase in total annual sendout, about a 6-fold increase in annual sendout per customer and about a 50-fold boost in peak day requirement. Of course, these increases have stemmed primarily from the space heating business we have taken on, although increases in other residential uses and commercial and industrial business have been important factors. Our experience clearly shows the serious peak problem created by the space heating load and its deleterious effect on annual load factor and points out the need for developing off-peak loads and for peak shaving.

Charles L. Hulswit is president of Rockland Gas Co. Inc., Spring Valley, N. Y. He has had almost 15 years of natural gas experience, even though his company is part of the New York City metropolitan area.

Mr. Hulswit was graduated from the University of Michigan in 1925. Since then, he has been employed by Peoples Power Co. (Moline, Ill.), American Commonwealth Power Co. (Bangor, Maine), and joined Rockland Gas Co. Inc. in 1930. He was in charge of the company's operations until 1937, when he was elected president.

Pipe System Changes

The effects of dry natural gas on a distribution system which has been delivering saturated manufactured gas is a matter of concern to all who are planning to go to straight natural gas. Our experience in this connection may be helpful. The two low-pressure systems which we operate consist of cast iron pipe in sizes ranging from 4-in. to 8-in. with both lead and cement joints, as well as some screw-coupled wrought iron and steel pipe. The intermediate pressure distribution systems and the high pressure transmission system were all less than six years old at the time of the conversion and consist of welded and screw-connected steel pipe. At the time of the conversion, we raised the pressure on our low pressure system from 4 in. to 6½ in. water column in order to get better appliance performance with the natural gas.

Coincident with the introduction of natural gas into our low pressure systems, we started humidification of the gas at the points of entry. This was accomplished by the injection of steam under automatic control which was set to maintain a relative humidity of 90%. Since the temperature of the gas entering the distribution system was always decidedly higher than ground temperature we thought that the gas in all parts of the system would be saturated with water and that drying out of caulked pipe joints would be effectively prevented.

Unfortunately this did not prove to be the case. Immediately after the change to natural gas, we noted that no drippage was collecting in drips over a mile distant from the point of introduction of the humidified natural gas. Within two years, numerous joint leaks began to show up and the unaccounted-for increased substantially. Tests showed that whereas gas near the point of introduction to the distribution system was saturated, gas at a distance of a mile or more had relative humidity of only 40%. This condition we felt was caused by the fact that some of the water carried by the gas as it entered the distribution system was in the form of mechanically suspended moisture as well as true water vapor. This former component dropped out almost immediately leaving a gas which was not wet enough to prevent a slow drying out of caulked pipe joints. The large pumpage at the drips close to the point of introduction of the natural gas bore out this theory.

We were unable to pass our gas through a water seal holder before putting it in the low pressure systems. Had we been able to do so our experience in preventing the drying out of pipe joints might have been more successful.

Our solution to the problem of stopping joint leaks on our low pressure systems was to discontinue humidification and let the joints dry out completely. We then introduced a jute-swelling liquid into our mains. To do this successfully, we had to make numerous openings at high points for injection of the liquid and install drains for removing excess liquid at low points where drips were not already in existence. In some sections where the liquid treatment was not successful or where joint leaks were large we dug up the joints and installed leak clamps. Wherever streets were to be repaved we leak-clamped all joints ahead of the paving. Our efforts along these lines were successful and within a few years we were able to bring down the unaccounted-for on our low pressure systems to the pre-natural gas levels. As of this date, joints given the liquid treatment in 1937 are still tight.

Our most serious trouble with natural gas on our steel intermediate pressure distribution systems and on our transmission system was pilot outages caused by dust. As the inside of the pipes dried out, rust caused by oxygen and water in the manufactured gas became dislodged from the pipe wall and was soon ground to fine dust through being carried along by the gas stream. This dust built up on pilot orifices and in a very short time shut them off completely. To cope with this problem, we installed pilot filters on all pilots giving evidence of dust trouble and also made sure that all new appliances installed on our lines were equipped with pilot filters. In addition, we blew as much dust as we could out of the high pressure systems at blow-off connections installed in safe and non-objectionable locations.

Natural's Rewards

While it is true that the introduction of natural gas into a distribution system that formerly carried manufactured gas poses its problems, it also has its compensations. The dew point of any natural gas delivered in New England will be well below minimum ground temperatures and therefore all drip pumping and winter freeze-ups will be eliminated. Also, since the gas will contain no oxygen, there will be no internal corrosion. In addition, the fact that natural gas is non-toxic makes it safer to work with than manufactured gas.

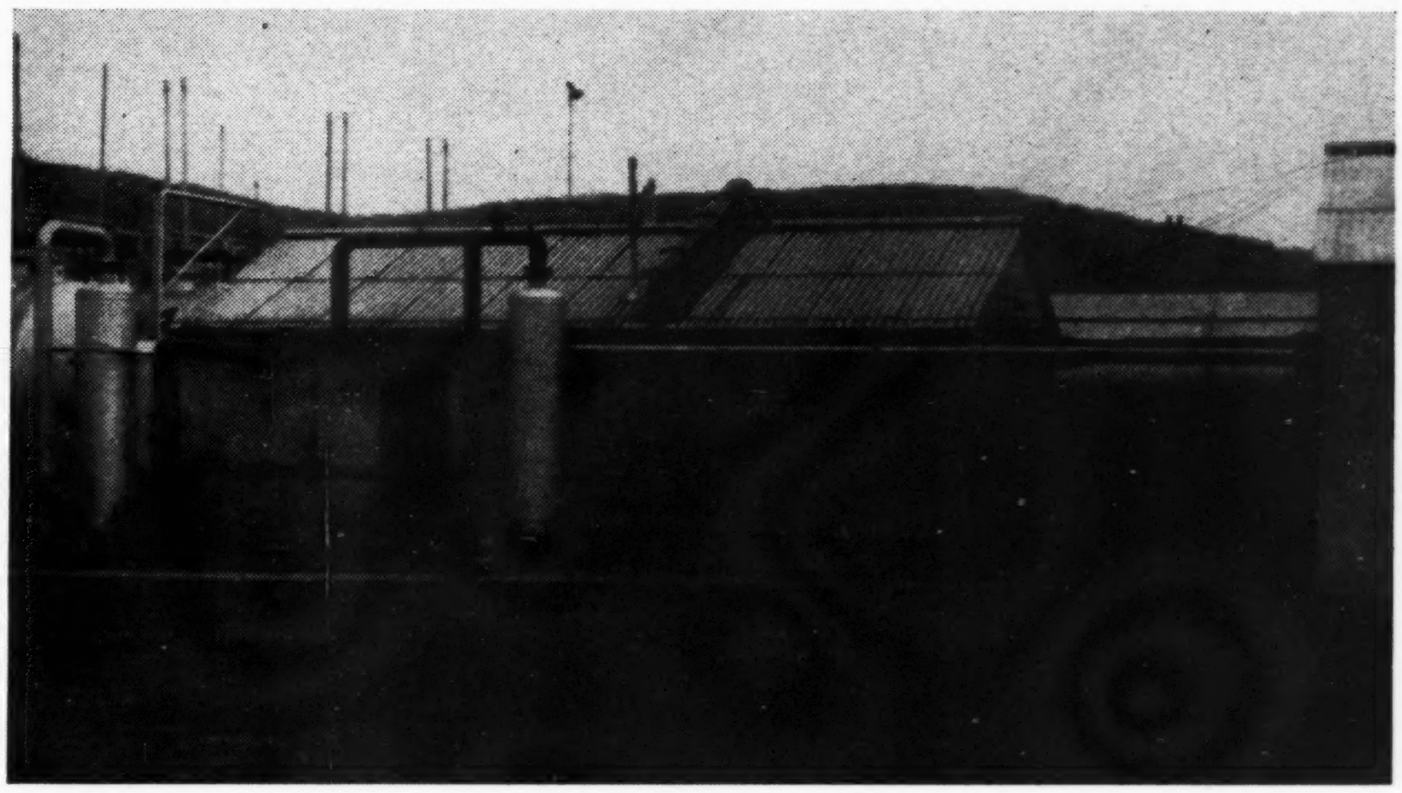
Just a word about our experience with the effect of natural gas on meter diaphragms. In that portion of our system served with compressed manufactured gas, we found practically no bleaching of diaphragms after long exposure to natural gas. In that part of our system served with non-compressed coal gas, we found that a moderate amount of re-diaphragming was necessary. However, in that part of our system supplied with water gas, almost all of the meters required re-diaphragming.

The question of having gas manufacturing equipment for use as standby and also for peak shaving is of real concern to those who are considering converting to straight natural gas. In our case the major part of our manufacturing plant was coal gas equipment which, of course, could not be used as natural gas standby. We did maintain our water gas equipment, which had a daily capacity of about 1200 therms, for six years. By that time our load had grown to a point where this capacity was insignificant and the plant was, therefore, retired.

In 1942 it became evident that, because of the large war industry demands for natural gas in the East, the depletion of the Appalachian gas fields, and the war restrictions which made it impossible to build new supply lines from the great Southwest gas fields, a critical natural gas shortage would develop in the East. Since the position of my company at the end of a long transmission line was extremely vulnerable, we decided that we must have some type of standby plant to take care of our customers' requirements during periods of shortage in our natural gas supply. Tests which we had previously made indicated that a mixture of propane and air could be used as an emergency substitute for natural gas. We were able to sell the Office of War Utilities on our need and managed to get our hands on sufficient material to complete a propane-air plant in the spring of 1943.

This plant can produce gas at pressures up to 70 psi by mixing propane vapor directly with compressed air. Propane is vaporized in a steam heated shell-and-tube heat exchanger at the pressure desired and is mixed with compressed air under calorimetric control. Originally the plant had a storage capacity of 75,000 gal. of propane and a daily gas-making capacity of 30,000 therms, but it has since been enlarged from time to time until it now has a storage capacity of 290,000 gal. and a daily gas-making capacity of 70,000 therms.

Experience in operating this plant—and we have had plenty of it—has shown that propane-air gas with a heating value of 1450 Btu is a passable 100% substitute for natural gas in an emergency. By passable I mean that, although we experienced some difficulty with customer's appliances when using this gas, these difficulties were not excessive and we were able to handle them with our regular service force. At rates of substitution under 80%, heating values less than 1450 Btu can be used, the heating value becoming progressively lower as the rate of substitution is reduced. At rates of substitution under 70%, no utilization difficulties are encountered provided the right heating value is used. In discussing the interchangeability of propane-air gas with natural gas one must take care to specify the natural gas he is talking about, since natural gases from different areas can vary rather widely in their compositions.



VAPORIZER AND BUILDING for mixing control, showing tanks where air is mixed with propane and propane-air is mixed with natural gas.

During the war years, and more particularly during the winters of 1946-47 and 1947-48 when the Eastern supply situation was most acute, we were able through the use of our plant to maintain uninterrupted service to our residential customers. On several occasions the propane supply situation was so tight that we had to curtail our commercial and industrial customers and ask our residential customers to conserve the use of gas in every possible way. During the winter of 1947-48, we produced 30% of our entire gas requirements at our plant and during two periods of two days each supplied our entire load with manufactured gas since no natural gas was available.

Standby Called In

This plant proved a life saver on Dec. 26, 1945, when the gas line supplying us blew out at a point about 25 miles from our gate station. Pressure started to drop on the line at 11 a.m. and although we had no men at the plant at that time, we managed to get a crew there and get the plant in operation by 11:45. As the pressure on the natural gas line continued to drop we picked up the load with the plant and by 12:30 p.m. were carrying the entire load. Two of the outstanding advantages of a plant of this type in emergencies are the speed with which it can be put into service and the fact that few men are required to operate it.

I don't want to convey the idea that a natural gasman's life is one of constant shortages and emergencies. Although the going was pretty rough during the winters of 1946-47 and 1947-48, we now have an adequate supply of natural gas assured us and a new pipeline system to deliver it. During the past 14 years we have experienced only two complete failures on our old pipeline, parts of which were constructed in the 1880's.

Prior to 1949, we purchased natural gas on a non-demand type of rate and there was, therefore, no economic incentive, at least from the gas purchasing point of view, for us to control our peaks. Recently, our natural gas purchase rate has been changed to demand and commodity rate and we now are very much in the peak shaving business. We find that our propane-air plant because of its flexibility and small operating crew is admirably suited to peak shaving. With a start up and shut down time of about 15 minutes each, it is possible to schedule operations so that the plant is run a minimum of time to do the required job. Our studies show that peak shaving pays big dividends and I am sure that after a conversion has been made to natural gas, all existing water gas and propane-air gas manufacturing equipment will be found useful for peak shaving and for taking care of emergencies.

In conclusion, I think our experience indicates that the introduction of natural gas in systems in New England at present fuel price levels offers gasmen the opportunity to greatly increase gas sales. A large part of these increased sales will come from the space heating business. The space heating load creates a very difficult peak load problem, but I believe this problem can be solved by developing off peak loads and by using present manufactured gas equipment, modified to produce a substitute for natural gas, for peak shaving. The final result, I am confident, will be better and cheaper service to your customers and more profit to your companies.

GAS MAKES GLASS FOR OWENS-CORNING

WHAT promises to be the world's most flexible glass-making tank—a 55-ton gas-fired regenerative type furnace that can be increased to 100-ton capacity—is now in daily operation at the seventh and most modern of Owens-Corning Fiberglas manufacturing plants, in Santa Clara, Calif.

Exclusive

Tied in with a straight-line operation that produces large quantities of the basic Fiberglas wool, with subsequent fabrication into many different Fiberglas products, the present-day process represents the culmination of years of research seeking a low-cost fast method for transforming molten glass into glass fibers of suitable fineness.

As early as 1890 attempts were made to produce glass in the form of filaments, simulating cotton, silk, and loom thread. In the Columbia Exposition of 1903, Edward Drummond Libby exhibited a glass dress, lamp shades, and other articles of woven glass; however, the fabrics were impossible to fold and quite heavy, making them commercially impractical.

A few patents were issued for the products of glass fibers in the early 1900's, largely in Germany and England—the fibers were coarse and the cost of production was extremely high.

Find Basic Process

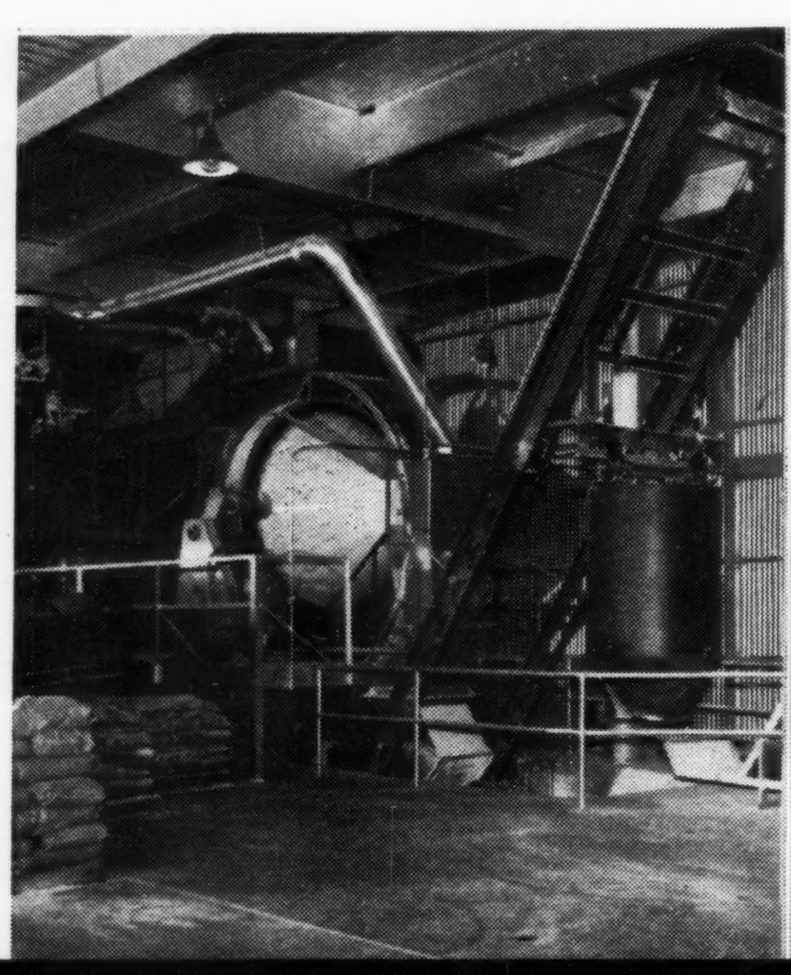
It was not until 1931 that Games Slayter, in individual research, developed the basic process which was interesting enough to cause Owens-Illinois Co. to set up a laboratory to develop a program under his direction. First experiments utilized an oxyacetylene burner with a coarse rod being fed through the flame and the current of gas drawing the molten material into

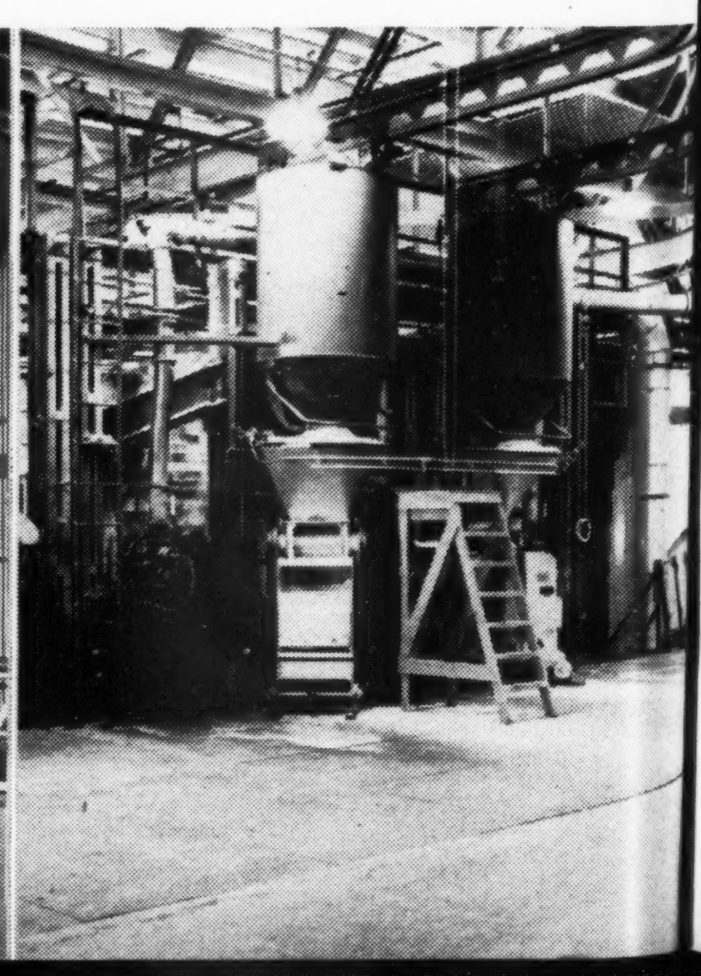
AIR VIEW of Owens-Corning Fiberglas manufacturing plant in growing industrial area near Santa Clara, Calif.

filaments. From this developed the next stage, approaching the present use of trough-shaped and refractory conditioners for the molten glass, with weirs along the edges through which the molten glass flowed and was cut in high-velocity jets for attenuation.

The use of metal orifices with controlled temperatures was the final development leading to successful operation of the present process.

In 1938, Owens-Illinois merged with Corning, which had developed the bonded mat machine used in forming of glass



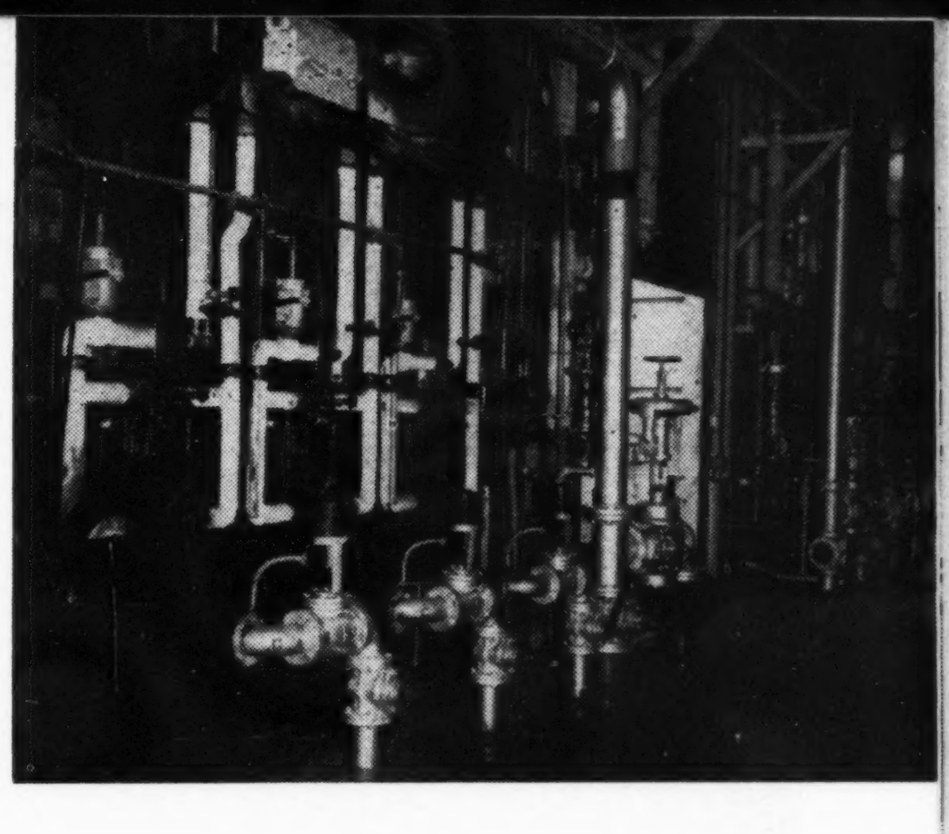


AT LEFT, rotary mixer makes batch of raw material, to be automatically conveyed in cans shown at right to 55-ton regenerative furnace. (Also at right.)

fibers into exact predetermined densities, weights and shapes.

Production of Fiberglas at the new Santa Clara plant begins with the unloading of sand, limestone and other mineral ingredients from hopper-type freight cars. The materials drop into a pit where a bucket elevator picks them up and delivers them to separate bins in a large silo.

Each of the storage bins in the silo has a weighing hopper remotely controlled by scales equipped with a photoelectric cell to make the operation foolproof and automatic. Separate ingredients, as they are weighed, drop onto a belt conveyor which transports them to a 56-cu-ft rotary mixer.



COMBUSTION CONTROLS for the two 40,000-lb-per-hr boilers. Gas-fired, they produce the steam used in all-important attenuation of glass as it flows from small orifices at bottom of forehearth, after melting in the glass tank. Plant uses 1152 Mcf daily.

Automatic Conveyors

The mixer unloads into "cans" which are elevated to a monorail conveyor above furnace level, which provides for storage of many batch cans, both loaded and empty. By an ingenious switching system, cans containing preferred mixtures can be given precedence in unloading into the furnace.

As batch cans move into position above a hopper, the outlet of the can is automatically opened and the mixture is properly fed into the furnace by a variable ram action. There the mixture melts at a temperature of 2600° F.

Regeneration in the 400-sq-ft melter of the refractory-lined furnace is accomplished by alternate firing at approximately 30-minute cycles, effecting a heat exchange through a series of staggered brick cells. Efficiency of this system is predicated on the low heat absorption of the glass (16%). By the passing of the hot exhaust gases through the checkers before their escape in the stack, an additional 46% of heating efficiency is gained.

Gas' Production Part

As glass in the "tank" of the furnace flows, it builds up to the level of outlets at the rear which let the surface glass flow to the forehearth. At the bottom of the forehearth are many small orifices formed by metal bushings under variable heat control. The flow of the glass through these orifices is a function of the size of the orifice, the viscosity of the glass, and the head of the glass in the forehearth. Viscosity is under control both from jets of gas playing upon the surface of the glass in the forehearth and from controlling of the temperature of the metal bushings through use of electrical resistance effects with low voltage, high operage current. The head is usually a predetermined constant.

As the small streams of glass flow from the many orifices, they are given a controlled acceleration by a set of steam jets. Glass is thus attenuated before solidifying to a specific and consistent diameter, averaging .000055 in. for glass wool.

Dropping from the hopper to a wide belt conveyor, the attenuated glass forms a mat, the thickness of which is governed by the speed of the conveyor. As glass wool is extremely resilient, no amount of compression, less than destructive, will further vary its thickness.

Now the fibers are collected in a forming hood that automatically sprays them with water-soluble phenolic resins, or binders.

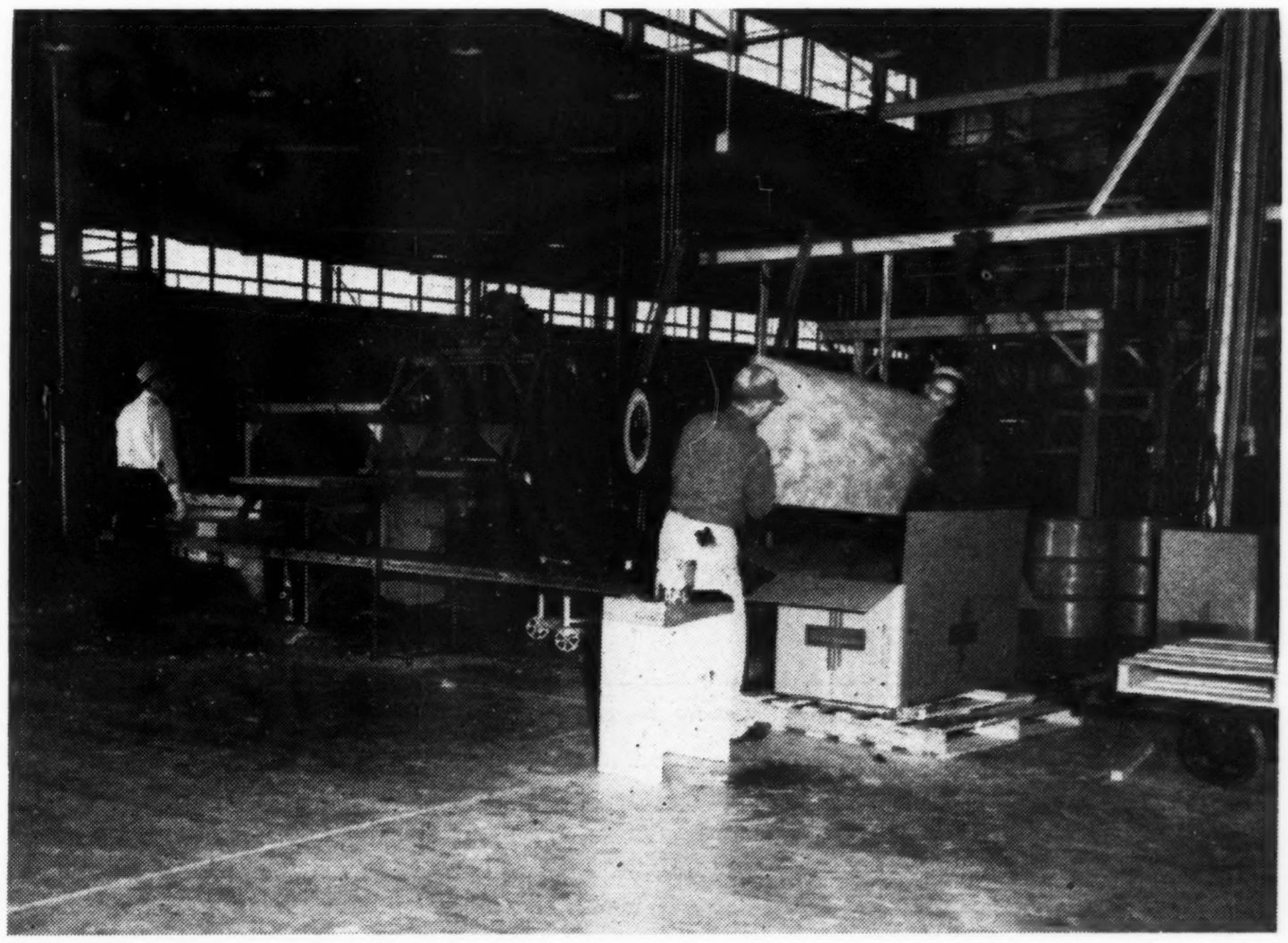
Proportioning the binders, from none to a maximum, and varying conveyor speeds permits the wool to be received for packing in its original form to densities up to and including 11½ lb. or approaching the density of soft wood.

The conveyor then passes through a 104-ft-long, mechanically circulated direct gas-fired oven that dries and cures the binder.

Cutting to length and width, application of asphaltic backing and other operations to develop the many specific types of Fiberglas products are the final steps in the conveyor process. At the end of the conveyor, portable packing machines prepare the products for shipments.

Present 24-hour gas consumption at the Santa Clara plant averages about 350 Mcf in the large furnace and 125 Mcf in the forehearth. Two 40,000-lb-per-hour boilers use about 552 Mcf per 24 hours. In addition, a specially-designed gas oven for bonding and heat treatment of "Aerocor" insulation for aircraft is now in operation, with 24-hour consumption of 125 Mcf.

The new Fiberglas plant was built by Bechtel Corp. from designs furnished by Toledo Engineering Co. Inc. and the Austin Co. under direction of the company's engineering staff at Santa Clara.



FINISHED MATS are cut to size and packaged at the end of 250-ft conveyor line. They have been shaped, treated with binders, and dried in a gas-fired oven.

An Efficient Design For Street-Fitting Trucks

By VERNON DAMM

Early in 1949, the Seattle Gas Co. decided to add to its fleet two new trucks for leak investigation and repair. A survey of our needs led us to the following considerations:

1. The truck would normally carry a three-man crew, but should accommodate two additional men.
2. The truck should carry equipment, tools, and material for repairing leaks in mains and services, and for installing services and mains 2 in. and under.
3. The truck should be equipped to tow a 105 cu ft portable air compressor, including the necessary pneumatic tools and hose.

As ideas on these trucks developed, we eliminated further consideration of a ½-ton truck which we had tested. This size, and the ¾-ton size, do not have the necessary carrying capacity or body size. Conversely, our 1½-ton, long wheel base, street-fitting trucks do not have the performance or ability to maneuver in crowded places.

Our final selection was a nominal 1-ton 134-in. wheel base truck with a gross vehicle weight of 10,000 lb, a low ratio rear axle for good grade ability while towing a portable compressor, dual rear tires for better traction, and booster brakes for safety.

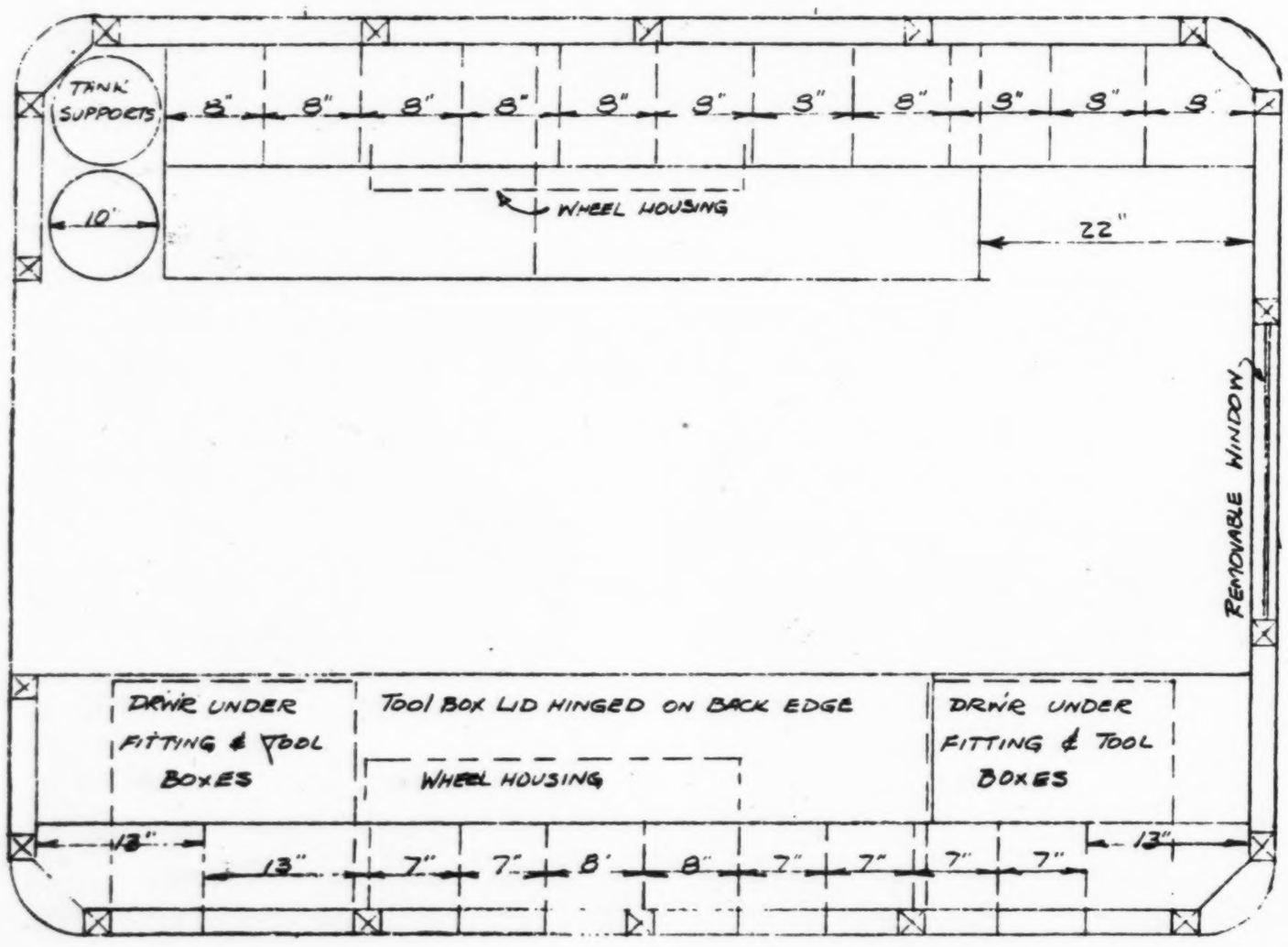
Ready-made bodies were found not to conform to our special requirements, and we proceeded to design our own, and to have them built by a local body builder.

Each truck, now completed, seems to possess all the advantages we had attempted to gain. The bodies are 8 ft, 6 in. long, 6 ft, 2 in. wide, with 5-ft headroom. This relatively narrow body gives the driver better visibility to the rear, and the restricted length partially offsets the length of the towed compressor. The body weight, with all pipe racks and built-in features, is less than 2000 lb. This, with 4100-lb chassis weight, allows almost 4000 lb of pay load—well above our usual maximum.

To eliminate the unsafe practice of working from the left or normal traffic side of the truck, all outside opening fitting boxes, drawers, and pipe vise are located on the curb side. Pipe storage for 10 lengths of assorted pipe ¾-in. to 2-in. is provided on the left side by means of a 6-in. x 6-in. metal trough outside of the body, and a combination grill guard and pipe rack supported from the front bumper, permitting the truck occupants to leave the cab on the curb side. A large step on the rear and hand rails on the body have been provided.

The left inside wall is occupied by four large tool drawers, a gas mask container, gas meters, gas indicator, pipe locator, lanterns, welding tanks and hose, a long pipe fitting box divided into compartments, and a compartment for meter bars and regulators. On the opposite wall is a box for a tapping machine, and a long box for shovels, picks, bars, and brooms. These boxes, when closed, serve as extra seats. Located on the wall above are a street barricade, a ladder, and a space for radio telephone equipment. First aid kit, drip pump, portable plug-in floodlight, and gasoline truck heater occupy allotted spaces.

Floor plan of the truck.


TANK SUPPORTS
10"
8" 8" 8" 8" 8" 8" 8" 8" 8" 8" 8"
WHEEL HOUSING
22"
REMOVABLE WINDOW
DRWR UNDER FITTING & TOOL BOXES
TOOL BOX LID HINGED ON BACK EDGE
WHEEL HOUSING
DRWR UNDER FITTING & TOOL BOXES
13"
13" 7" 7" 8" 8" 7" 7" 7" 7" 13"

Electrical Anti-Freezing For Gas Holder Cups

By W. R. GARRETT

THE erection of gas holders on sites where steam or hot water is not already available necessitates the careful consideration of suitable anti-freeze apparatus. Such a holder was erected on a virgin site on the northern outskirts of Newcastle-upon-Tyne, some miles from the nearest gas works, and the ultimate selection of suitable anti-freeze equipment was electrical elements inserted in the cups.

The holder is spirally guided, has a capacity of 3 MMcf, and is constructed in a partly submerged reinforced concrete tank with coping level 14 ft above the surrounding ground. Dimensions of the holder are as follows:

	Diameter	Depth
Inner lift	204 ft X	30 ft 9 in.
Middle lift	207 ft X	30 ft 9 in.
Outer lift	210 ft X	30 ft 9 in.

The tank is 216 ft in diameter, and provision has been made for the addition of a fourth lift at some future date. The cups are 12 in. wide x 1 ft, 10½ in. deep.

To determine the size of the heating elements, tests were carried out in the winter of 1945-46 to measure the heat losses in the cups of existing holders. Working on the assumption that there is about 20°F of frost, the rate of heat input required to compensate for the heat lost in each cup was calculated to amount to the equivalent of about 2°F per hr. On the basis of approximately 66,000 lb of water in each cup for the new holder, and assuming 90% efficiency, the requirements are thus approximately 45 kw of electric energy per hr, or 1/16 kw per ft run of cup.

The heating elements each consist of 700 ft of standard triple-core copper-sheathed "Pyrotenax" 0.0015 cable, star-connected at one end, and supplied complete with 10 yards of triple-cored 0.0145 "lead in" cable for connecting to the 415-volt three-phase 50-cycle supply. The elements are laid in mild steel hook straps attached to the dip plates, and are positioned about 1 ft 4 in. below the cup water level.

The electric supply to each cup is transmitted through flexible armored cables which re-wind automatically onto "Wayne" self-winding drums, according to the position of the holder. The location of the reels and the general arrangement of the plant are shown in *Figs. 1, 2 and 3.*

The control gear is mounted in a sheet steel cubicle approximately 5 ft 6 in. high x 2 ft 3 in. wide x 2 ft deep, and is housed in the adjoining governor house. It contains the necessary switchgear, HRC cartridge fuses, indicating lamps,

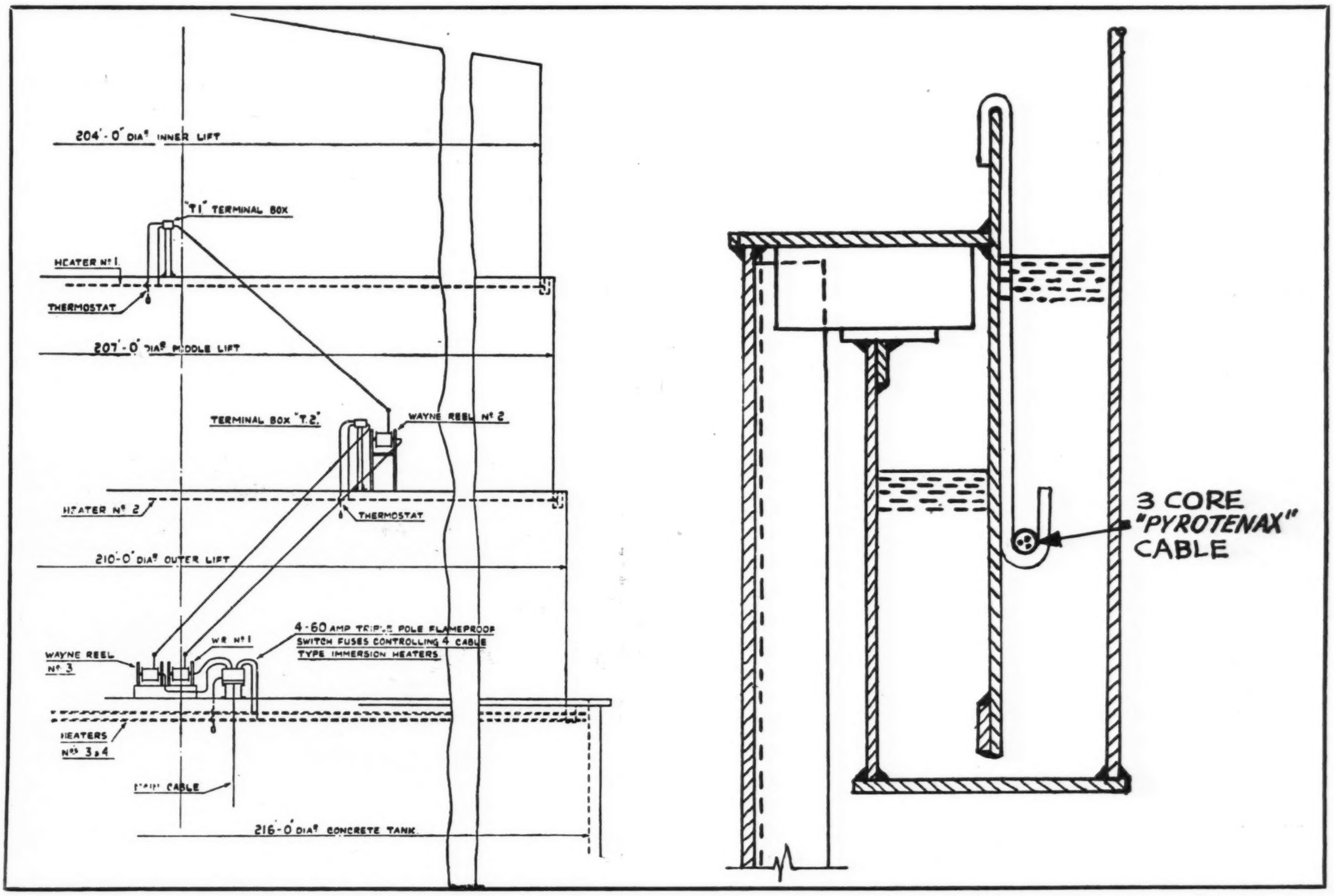
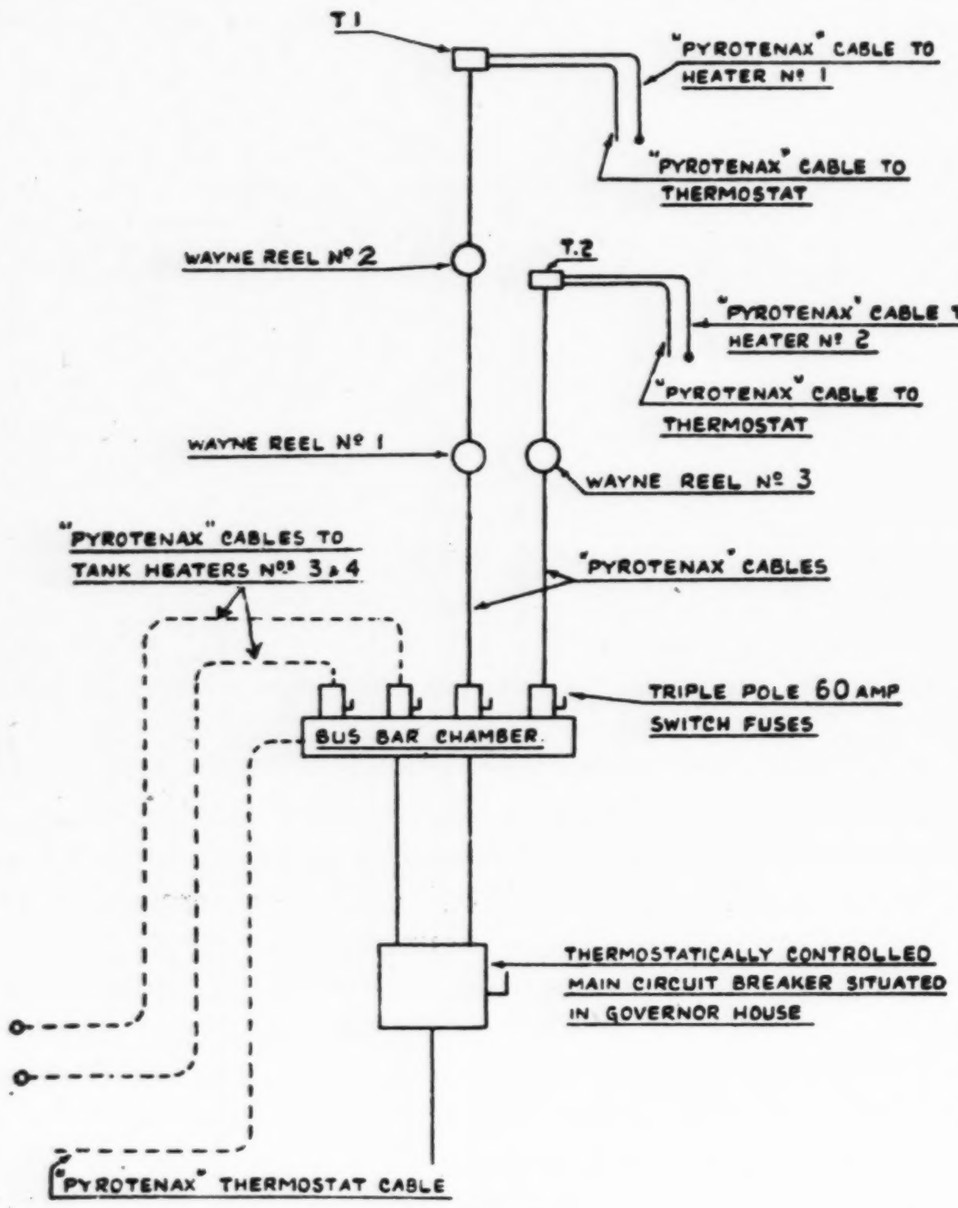


Fig. 1. Elevation of the fully inflated South Gosforth gasholder, fitted with electric anti-freeze apparatus.

Fig. 2. Enlarged section at cup and dip, to show the position of the heating cable of the anti-freeze apparatus.


T.1
"PYROTENAX" CABLE TO HEATER Nº 1
"PYROTENAX" CABLE TO THERMOSTAT
WAYNE REEL Nº 2
T.2
"PYROTENAX" CABLE TO HEATER Nº 2
"PYROTENAX" CABLE TO THERMOSTAT
WAYNE REEL Nº 1
WAYNE REEL Nº 3
"PYROTENAX" CABLES TO TANK HEATERS Nºs 3 & 4
"PYROTENAX" CABLES
TRIPLE POLE 60 AMP SWITCH FUSES
BUS BAR CHAMBER
THERMOSTATICALLY CONTROLLED MAIN CIRCUIT BREAKER SITUATED IN GOVERNOR HOUSE
"PYROTENAX" THERMOSTAT CABLE

NOTES

Wayne Reel No. 1 — *is fixed to the concrete curb on the tank, and pays out cable to Wayne Reel No. 2.*

Wayne Reel No. 2 — *is fixed on brackets to the top of the outer lift, pays cable to T.1.*

Wayne Reel No. 3 — *is fixed to the concrete curb on the tank, and pays out cable to T.2.*

Terminal Box T.1. — *is fixed at top of middle lift.*

Terminal Box T.2. — *is fixed at the top of the outer lift.*

Wayne Reels are fitted with swivel connections.

Fig. 3. Schematic diagram relating to the anti-freeze equipment.

ammeter, voltmeter, kwh meter, etc.

A cable connects the governor house control gear to a flameproof-pattern bus bar chamber and ironclad, flameproof, 60-amp. triple-pole interlocked air-break switch units situated near the holder, from which the supply is connected to the Wayne reels at coping level.

The electric supply to the heaters is arranged to switch on automatically by thermostats when the temperature of the water in the cups drops to 36°F, and cuts out when it exceeds 40°F. The thermostats are arranged to control the main circuit breaker in the governor house. A warning light indicates whether the current is on or off.

It will be noted that, in this particular instance, the electrical heating only applies to the cups. The water in the tank has no heating, and for maintaining ice-free conditions reliance is placed on circulating the water with four electrically driven agitators situated around the periphery of the tank.

Because of the comparative mildness of the last two winters, complete working experience of the system has not been possible, but, subject to the thermostats working correctly, it should prove a successful alternative to the older systems.

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Two jobs in one

BROOKLYN OVERHAULS HOLDERS

BROOKLYN Union Gas Co. last summer lumped two major holder jobs together into a single operation which set new records for both speed and economy.

The more urgent job was the replacement of a 36-in. intake in the company's Fifth street holder with a 48-in. pipe to accommodate the increased capacity of the company's Citizen works. Also of importance was the need for a dewatering and overhaul, the first to be undertaken since the holder was placed in service in 1923. The combined operation was begun in April and completed in mid-September.

The dewatering task started with the severing of all connections and a complete purge. In removing the holder water, steps had to be taken to purify it in order to eliminate the nuisance of unpleasant odors created by the collection of foreign elements in it.

The water was first put through a 10,000-gal.-capacity decanter to settle out some of the sediment. From this tank it passed through box filters containing coke where further purification was achieved. The next step was a run through an aerator, the water entering through the top of the tower and air coming in at the bottom and passing up through it. Chemical treatment completed this phase of the work.

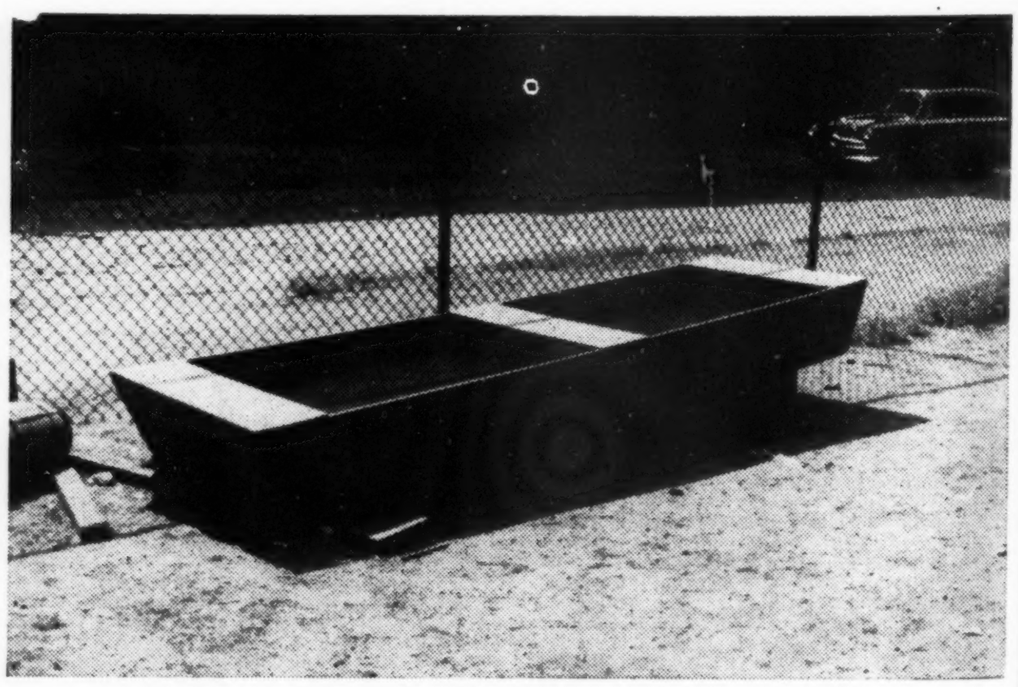
Several tons of muck had to be pumped from the holder bottom. Access to the holder for this job was made possible through the removal of several top sheets and the erection of a wooden stairway into the interior.

Overhaul, repair, painting at the water line, and a careful checking of all parts comprised the next step.

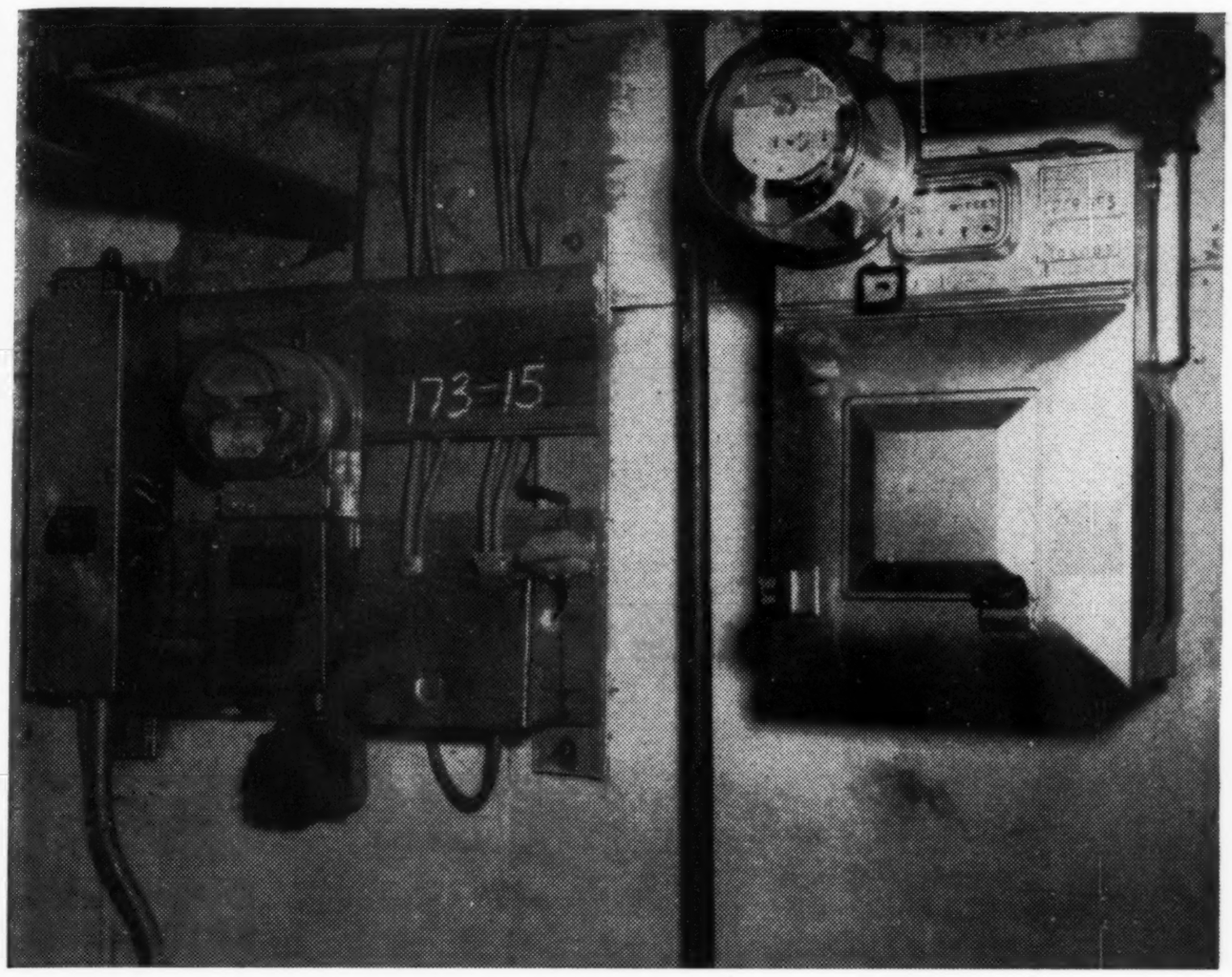
After the holder had been rewatered by a crew from the Bartlett-Hayward Division of Koppers Co. (8,568,000 gal. were required), workmen entering through the outlet pipe undertook the job of checking the integrity of the interior as the lift was raised by air pressure. For this task the men used rowboats, which had been lowered into the water through the hole in the crown. When the men emerged from the pipe, they stepped directly onto a platform where the boats were tied. Constructed of cheap materials, the boats were designed for use on the single occasion.

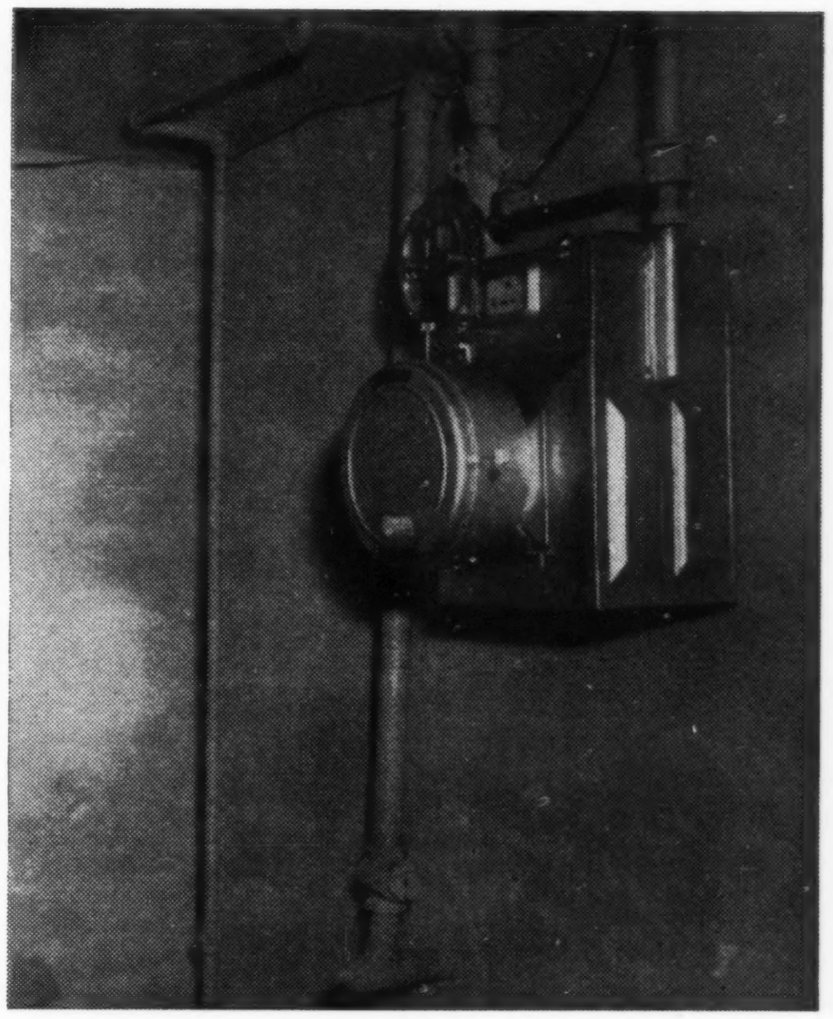
Two-way radio communication kept the men inside the holder in constant touch with the outside world.

Courtesy The Brooklyn Union *Gas News*.



THE EXPENDABLE BOAT used by Brooklyn Union for the overhaul job. Measuring 10 ft long and 3 ft wide, they are made of cheapest materials for use on just one occasion.





A CUMULATIVE demand register (left), mounted on a residential gas meter, gives the maximum rate of gas usage in any hour over a monthly period. The electric register receives current from house service; transformer is seen at lower left. A graphic demand meter attached to a residential gas meter (right) makes a record of rate of gas use for each half hour period in the month.

Con Ed Designs New Instruments to Test Commercial, Residential Load Demand

EIGHT hundred customers of Consolidated Edison Co. of New York Inc. are helping ConEd decide the effects of the heating load upon its facilities.

In anticipation of the coming of natural gas, the company chose 400 commercial and 400 residential customers in the New York area and is testing the heating load during 1950, so that engineers' work will be easier when the changeover is made. The data sought, on each gas meter under test, is the monthly cubic foot gas consumption, the highest rate of consumption for any half-hour period during the year and the rate of consumption for each half hour in certain months in the heating season. ConEd's rate engineer's department initiated these load tests and will compile and analyze the data obtained. Among some of the uses of these data will be the determination of diversity between heating customers as individuals and as groups, and their relation to other gas customers, as well as the construction of daily load curves for these customers in relation to the total load curve for the system.

In order to get this measurement of demand, the company's meter engineering bureau, working closely with the meter bureau, developed a register mechanism which is mounted on, and operated by, a gas meter. The equipment used and its method of application is believed to be a brand new approach; thus it was necessary to find the answers to a great many new problems.

Engineering and design were handled by Lawrence A. Pagano of the meter engineering bureau of ConEd. Construction of a working model, assembly of gas demand meters in quantity and their installation in the field were done under the direction of Frank R. Keller and James Webb of the meter bureau.

The problem was licked by adapting to the gas meter mechanism a standard demand register and a graphic demand meter normally used in connection with electric watthour meters. This called for the design and manufacture of special parts. Other parts, standard for electric meters, had to be modified. New parts and modified standard parts were produced by several manufacturers. When received, they were inspected by the meter bureau before assembly.

One vital part needed was obtained from war surplus material. This was a right-angle gear box originally designed for a bombsight. It was fitted into the design of the register mechanism so that, for about 11 months of the year, the gear box will be connected to a demand register. Its position will then be shifted so that it can actuate a graphic demand meter for the 12th month.

These demand devices contain an electric timing motor, similar to those used in electric clocks, which resets the advancing mechanism to zero every half hour. The motor operates on 120-volt, 60-cycle alternating current. Power is

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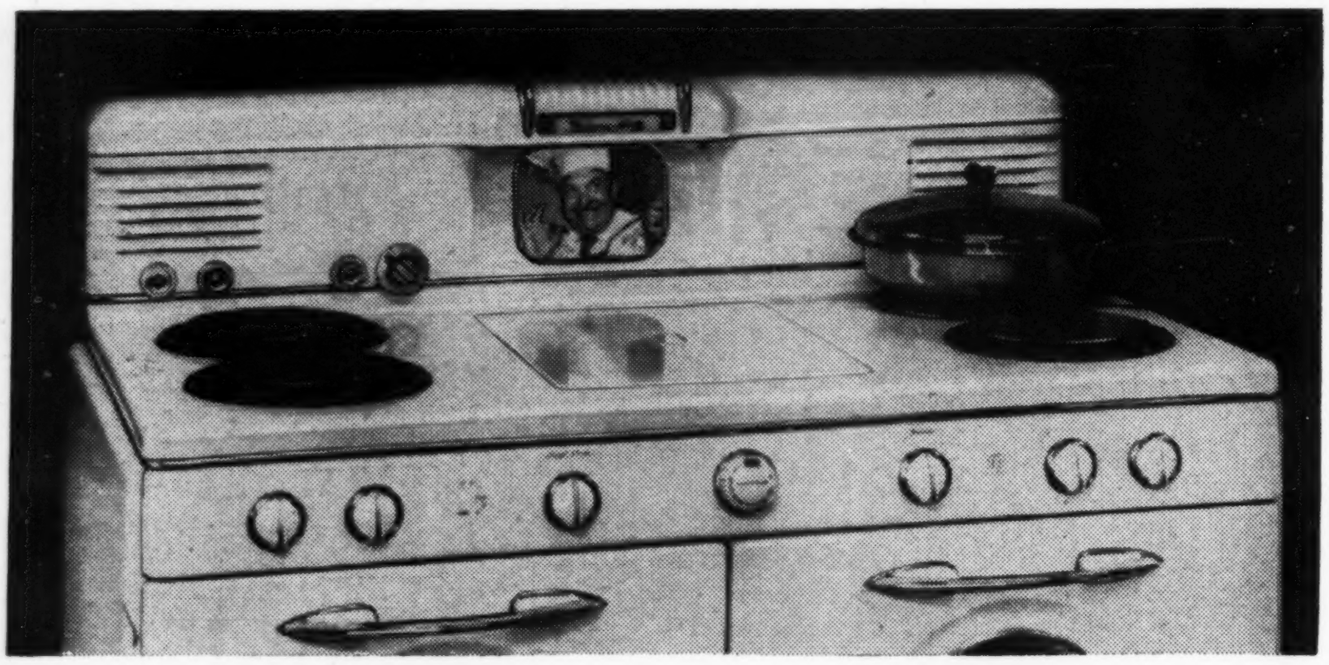
Courtesy of *Around the System*, ConEd employee publication.



Postscript to Television Use

GAS in recent weeks appeared to be moving a bit closer to the center of the "television picture."

After *GAS* had gone to press with its television article *(GAS*, February, pp. 23-25), three additional companies reported they are now making use of the medium. Late replies from three others were negative, but the combined totals brought the affirmative aggregate to 14 out of 43.

Meanwhile, Harold E. Eckes, director of advertising and publicity for The East Ohio Gas Co. and the most articulate of television's proponents in the gas industry, had succeeded in his initial move to put the industry's activities in television on a nationwide basis.

At a meeting of the AGA advertising and publicity committee in Cincinnati, committee members who heard his case voted to set up a television subcommittee to study the possibilities of a coordinated program. Chairmanned by Mr. Eckes, the committee includes George A. MacDonald, AGA headquarters, secretary; James M. Floyd, Lone Star Gas Co., Dallas; R. D. Lewis, Laclede Gas Light Co., St. Louis; and Howard A. Prager, The Brooklyn Union Gas Co.

The subcommittee will prepare a report on the possibilities, methods, and costs of interesting a group of gas companies in putting on a national television show.

The three companies who were the last to report their espousal of the medium are The Ohio Fuel Gas Co., Columbus; the same company in Toledo; and The Cincinnati Gas & Electric Co. The last-named is presently undecided as to its future course, having decided not to renew an expiring contract on a 10-minute broadcast featuring Encyclopedia Brittanica films but considering a weekly 30-minute show titled "Crusade in Europe."

In Columbus, Ohio Fuel Gas was enthusiastic. It has upped its thrice-weekly news broadcasts to a full five-day week, and has hired an agency to handle the account in order that more time may be devoted to servicing it. The company also has a one-minute spot on the television homemaker's show.

And here's a new angle: The company suggested that the station show the Columbia Gas System movie, "The Eternal Flame," as a public service feature. After trying the stunt once, the station was so pleased that it rescheduled it for a future date. The utility's radio-TV director, Margaret Schrock, says it was seen by more people during the one telecast than would have seen it at service clubs, etc., in a three-year period.

Has any opportunistic, enterprising gas appliance manufacturer figured out how to make a gas-fired television set?

Well hardly, but indirectly Western Stove Co. of Los Angeles has devised a way to "add it to the base load."

Western has built a set right into one of its Western-Holly gas ranges, and at its premier showing at the Los Angeles Furniture Mart recently it nearly stole the show.

"Of course it's still in the promotional stage," remarks President Henry Honer. "We want to test public reaction before we go into a full-scale production."

As shown, the set may be mounted to the rear of the range, which would have to be set out from the wall, or it can be mounted in the storage compartment to give a flush-to-wall installation. The screen measures 7 in., and the speaker is mounted behind one of the forward vents.

Mr. Honer foresees the possibility of using the revolutionary range to help teach the homemaker good cooking and baking.

supplied from the service side of a nearby a-c watthour meter. It passes through a bell-ringing transformer which reduces the voltage from 120 to 24 volts. A flexible duplex lead from the low voltage side of the transformer runs to a second transformer, mounted on the gas meter, which steps the voltage up to 120 again.

Actuating Force

The actuating force for the register mechanism is obtained directly from the gas meter on which it is mounted. This is done by coupling a chain-drive to a shaft which is inside the gas meter and which normally is used only to drive the gas meter index. The motion of this shaft is transmitted through a stuffing box to the right-angle gear box placed on the outside of the gas meter.

Graphic demand meters used in the study are normally actuated by electric impulses received from contactors in electric watthour meters. They were modified so that they could be driven directly by a gear train from the right-angle gear box.

The demand devices are mounted by means of specially designed brackets soldered to each gas meter under study. The stuffing box had to be placed in exact relation to the mounting brackets and the index shaft of the gas meter. Special jigs were designed for locating the stuffing box hole and the mounting brackets on the meter case. These jigs assured accurate mounting dimensions and also speeded the assembly operation.

ConEd Modifies

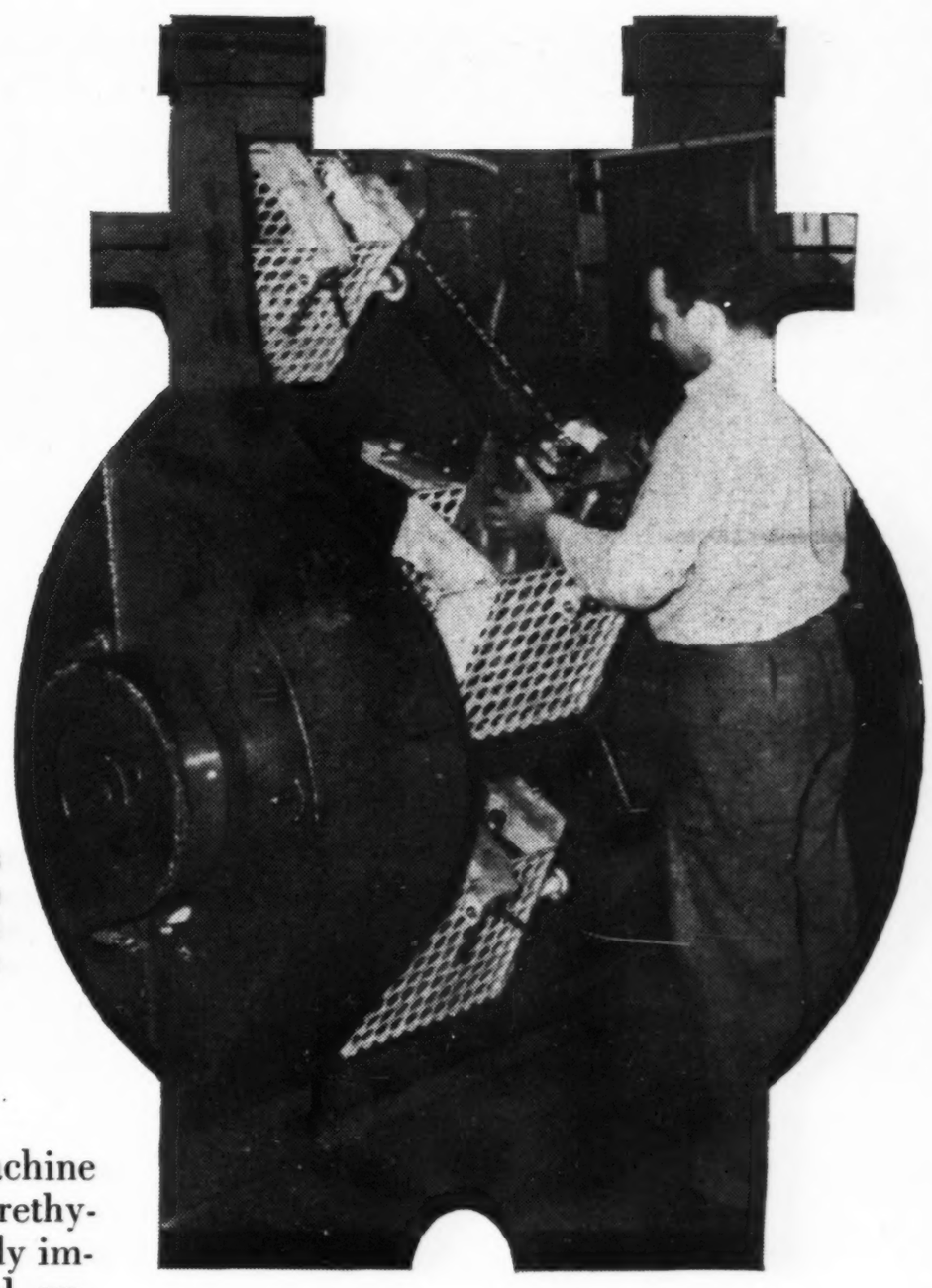
The modifications necessary to adapt the standard gas meters to this study were made by ConEd's gas meter repair shop. The gas meters were then tested and sent to the electric meter shop where the demand registers and transformers were mounted.

Manhattan and Bronx field installation was done from West 66th St.; Queens field installation was done from Flushing central service station. Enough meters for a complete day's work were carried on each truck. Field work was done by teams of two men, one a gas serviceman and the other an electric meter tester. Through this teamwork, installation was completed in one visit to each customer's premises.

Meter bureau men make periodic inspections at each of the 800 test installations and obtain readings of gas consumption and demand. They also replace charts on the graphic demand meters during their one-month use.

Demand values on the charts are automatically transcribed by means of a device developed for previous load studies and found useful in these tests.

Meter-Cleaning Made Easy With Automatic Methods



CREWMAN places meter into its wire basket for cleaning. It will be carried through solvent, tumbled and turned, so that all areas are cleaned.

SATURDAY night's traditional chore is now just a breeze at the Philadelphia Gas Works meter shop. Since last September, hand cleaning methods have given way to an assembly-line "bathtub," which is giving 80 meters a thorough dousing every hour.

The "bathtub" is saving time, it's saving money (10 cents per meter at present), and—most important—it's doing a better job. Mechanics who are responsible for overhauling meters now are assured of having really clean meters to work on.

In operation—briefly—the machine carries meters through a trichlorethylene bath where they are thoroughly immersed for a predetermined period, upends them to drain entrapped solvent, and delivers them several minutes later for their ride through the dryer. The entire job requires about 20 minutes, but 80 meters can pass through the process every hour as the machine accepts one every 45 seconds on average setting.

The machine, which was built especially for the company by Detrex Corp., Detroit, and cost about $18,000, consists of three principal parts—the cleaning chamber, drying tunnel, and still—and has an auxiliary, a 20-hp Kane boiler. The cleaning machine itself is essentially a belt conveyor and tank of trichlorethylene. The conveyor carries the meters on a "loop-the-loop" sort of ride which both fills and drains them. The dryer is a 35-ft-long tunnel, through which the meters ride on a belt. The still keeps the solvent clean.

The initial step in the process is the opening of the meters. Front, back, top, and valve enclosure cover (back plate) are removed, and the meters and parts are fed into the machine. They are cradled in basket-like containers built onto the belt conveyor, with strap fasteners which hold them securely during their tumbling ride through the solvent bath. Each meter is immersed in the warm trichlorethylene for from 3 to 5 minutes. Emerging, they are tipped upside down to drain out the solvent, and delivered to the operator.

The tipping movement drains out all the entrapped solvent, but the diaphragm is still saturated with it. Here's where the drying chamber comes in. The operator places the meter on the belt in the drying tunnel, where a stream of warm air plays over it as it moves along, inducing evaporation of the solvent, which is exhausted through a forced-air system.

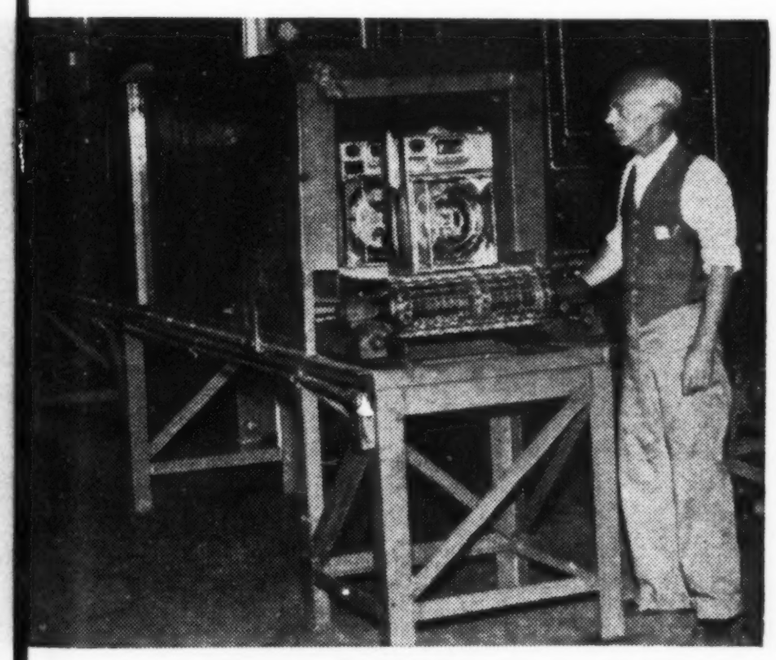
The machine replaces the former hand cleaning operation. By cutting down on labor, the machine has already trimmed costs by 10 cents per meter and, with further adjustments and refinements, Meter Division Supt. Robert J. Ott thinks the savings might go as high as 14 cents. With the present volume of meters handled—30,000 per year—greater savings than that are improbable, he thinks.

Parenthetically, the machine is designed for use in large shops only. It does not appear to be economical for small utilities.

Speed of the machine is variable. Mr. Ott has set it at one meter every 45 seconds, at which speed about 90% of the meters handled are thoroughly cleaned. Unusually dirty meters are given a second run.

Originator of the idea for the machine was Mr. Ott. It is the first of its type to be built. Cost of the installation included 1500 gal. of solvent.

This article is an augmented version of a story titled "Meters Are Now 'Dry-cleaned,'" published in the Philadelphia Gas Works Co.'s employee publication, *The PGW News*.



ABOVE: Harry Struck started meters on conveyor through meter-drying machine.

BELOW: Meter-cleaning crew: Walter Milos, George Young, Fred Sharkey, and Harry Struck.

Gas Firing Helps 'Heirloom' Earn Share of U. S. Chinaware

THE American demand for Dresden-type chinaware did not slacken with the advent of World War II—but the availability of the product from its Italian and Japanese sources did. The result was the first attempts of U. S. manufacturers to imitate the workmanship that had belonged solely to Europe for a century. One of the more spectacular of such entries was Heirlooms of Tomorrow, a Manhattan Beach, Calif., concern (although that organization didn't visualize its skyrocket future at the time).

Exclusive

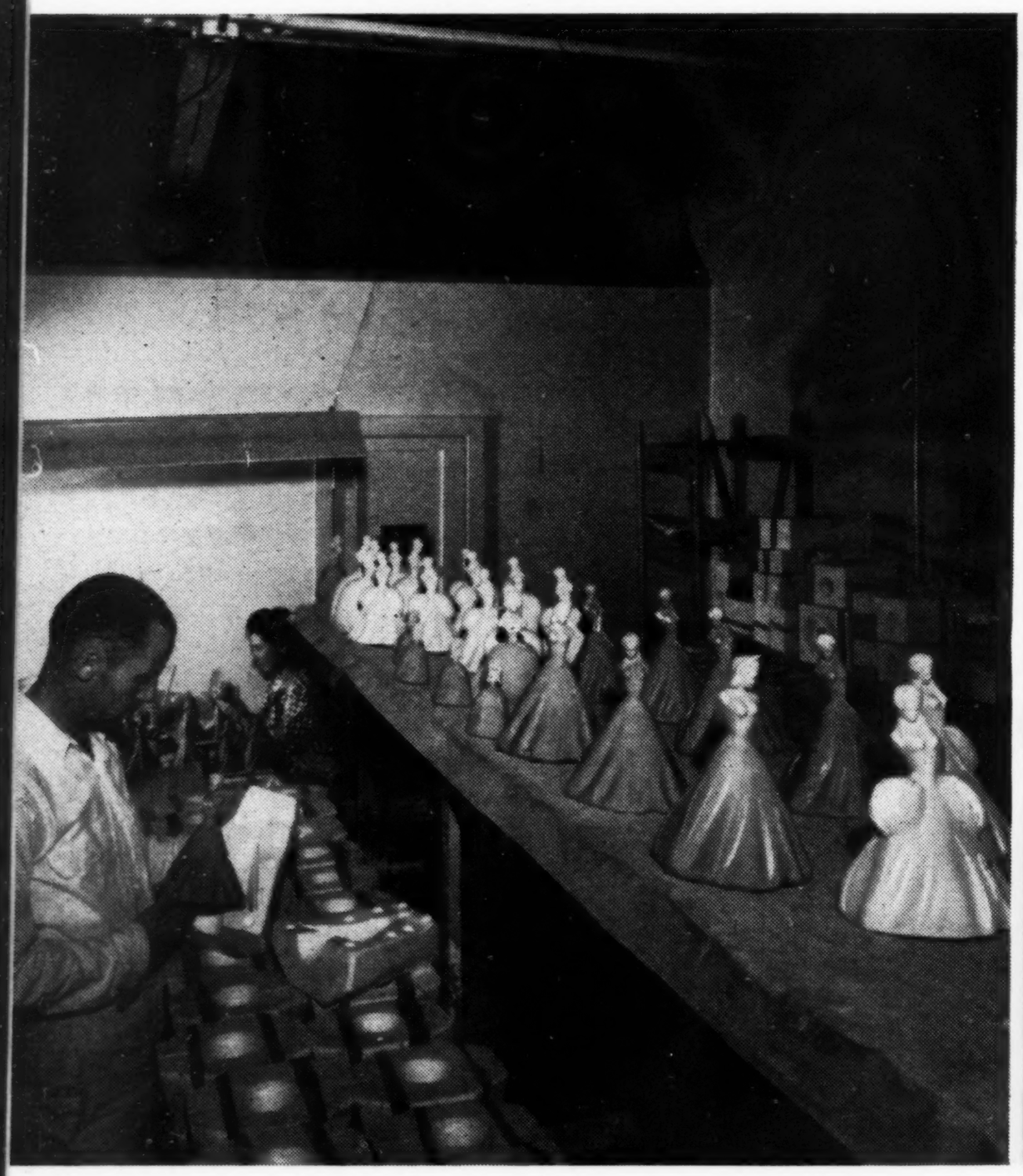
In its storybook history, begun just five years ago, Heirlooms of Tomorrow can count an expansion that started with virtually nothing in 1944 and built to an annual production worth $400,000 in 1949, a 10,800-sq ft plant, 152 employees, and manufacturers representatives throughout the U. S. The products: Dresden-type lace figurines (ranging in size from 3 in. to 15 in., china lace slippers in sizes from 1 in. to 18 in. Chariot slippers, vases, center pieces, and candalabra.

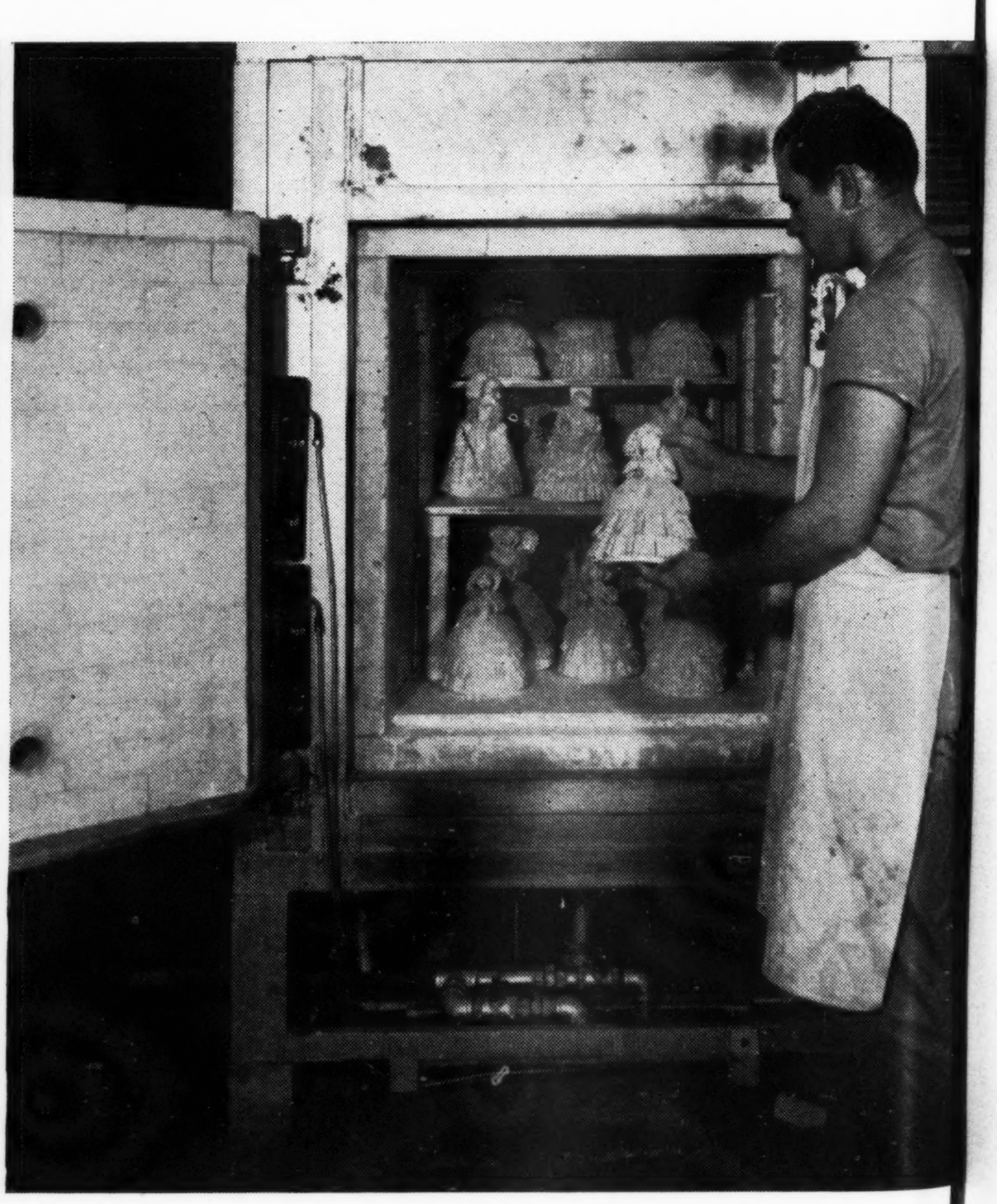
Growth of the business is a tribute to its owner, William Bailey, who started making the figurines as a hobby, and to gas—which has helped achieve perfect results in the bisque, glaze, and color firing of the delicate porcelain object in large quantity and at a fuel cost of only 3 cents per article. Owner Bailey attributes the fineness of detail in these products to three things: 1. type of clay used, 2. handling techniques, and 3. the method of firing.

Each of the firm's employees is trained on the job, starting on the smaller articles and progressing to the more expensive items as they become more adept at the work. It is usually a year before a girl is ready to work on the lace figurines.

Approximately six tons of dry clay are used per month in the manufacture of 10,000 articles. Clays come from Maine, North Carolina, Tennessee, Kentucky, and Arizona. They are mixed and ground in a ball mill to form the "slip," i.e., clay in a liquid state.

First step in the process is the molding of the ware. In addition to china, ball, flint, and various other clays, certain minerals are also used in molding. The





...m of Tomorrow'

...ar Market

PROPRIETOR BAILEY loads kiln with Alpine fork lift.

original molds are of plaster of paris.

First, liquid porcelain is poured into the plaster of paris molds, excess porcelain being drained, leaving a partially dried thin shell adhering to the walls of the mold. The mold is then opened and the model removed.

After a 2 or 3-hr drying period, the mold seams are removed with a tool and moist sponge. The figurine is then draped with real lace and bobbinet which have been dipped in porcelain. Draping requires a higher degree of deftness than any other single operation, for it must be done rapidly or the cloth loses its pliability and will not cohere to the model. The bonnet and draped arms are added after the bodice and skirt are finished.

The decorative flowers are made petal by petal with a special process porcelain. The excess stem is then cut away and the bottom of the flower is dipped in liquid porcelain and placed in position.

Now the model is ready for the first, or bisque, firing of the molded clay. This is done in a 15-cu-ft, semi-muffle, top loading Dickenson kiln fired by six upshot burners. Temperature is gradually brought to 2240°F over a 10-hr period and held approximately one hour. The temperature is lowered to 1500°F in one hour by reducing the gas input. The gas is then turned off, allowing a temperature drop, due to normal heat loss, for about 10 hours. An important aim of the bisque firing is to obtain a hard porcelain base. Because of the extreme controllability of the fuel, temperatures and quality of bisque can be exactly coordinated for best results.

After cooling, the figurine is now ready for the glaze firing. This is done in the five periodic kilns, also gas-fired. These are 20-cu-ft, semi-muffle, side loading alpine kilns. Each kiln is equipped with dual burner assemblies and each of these in turn is equipped with one electric motor and two centrifugal fans. One fan supplies air to the lower or main burner.

AT LEFT, figurines have just been removed from plaster of paris molds. AT RIGHT, garbed in lace and bobbinet, they are placed in Dickinson top-loading kiln.

The second fan supplies air to the upper auxiliary burner. The main burner supplies premixed gas and air to the bottom front corner of the kiln and the auxiliary burner supplies the fuel mixture about half way up the combustion chamber. One burner assembly is located on each side of the kiln door. The auxiliary burners are used only during completion of firing in order to prevent local hot spots.

Eight hours are required to bring the temperature to 1960°F for firing of the figurine after it has been dipped in glazing compound. This temperature is held for one-half hour, then gas is turned off and the kiln is allowed to cool for 12 hours.

The third firing is for color. Special paints are applied to the figurine's hair, eyes, trim of flowers, etc., which are then subjected to a temperature of 1375° F, reached after four hours. The gas is again turned off and the kiln is allowed to cool for 12 hours. This final firing makes the color permanent.

(Sometimes, when a number of color patterns are required, a fourth and even fifth firing may be done.)

Mr. Bailey has recently installed the Alpine fork-lift loader system which has cut the number of handling operations from 12 to 4. Normally, there are three firings for the ware, and each firing previously required loading it onto the truck and unloading it into the kiln; and after firing, unloading the kiln and then unloading the truck for the next operation. This meant there were four handling jobs per firing. Reduction in number of handlings has reduced loss due to breakage.

Under the new system, the dolls are placed directly on the kiln shelf by the girl who dresses the figurine. The fork-lift then picks up the entire load and sets it in the kiln. After the firing is completed, the kiln is allowed to cool to 300° F. The load is then removed by the fork-lift and is taken to the glazing department. In hand unloading, it was necessary that the kiln be cooled to 100°F after firing. As soon as the kiln is emptied, a fresh load is placed in the kiln ready for firing, thus eliminating the cooling of the kiln during hand unloading and reloading. The speed of this operation retains the heat in the kiln and affords them an additional savings in fuel.

After glazing, the ware is restacked on a second loading stand. Again the fork-lift is used to load and unload the glaze kiln and to deliver the ware to the decorators who restack their work on a fresh loading stand. The load is then taken to the decorating kiln and fired. The fourth and final handling is the unloading of the decorated ware at the stock room.

Economy of gas fuel in the three firings has been demonstrated by many tests. The quantity of gas used in each firing is as follows:

Bisque firing	3930 cu ft
Glaze firing	2300 cu ft
Color firing	1000 cu ft
Total	7230 cu ft

By applying this total to the average number of various sized pieces actually fired in a kiln, the cost of firing has thus been determined at $3.15 per 100 articles, or an average of only 3 cents each (based on a rate of $0.435 per 1000 cu ft).

GAS' Digests — *three significant addresses presented recently to gas industry groups*

Modern Fire Control In Natural Gas Plants

By GEORGE F. PRUSSING

If gas liquids and heavy vapors can be kept within their containers, George F. Prussing believes that fire prevention in natural gas plants will take care of itself.

Further, fire extinguishment is less important than fire control—for if a fire is kept within a controllable area, loss of life and of equipment can be avoided.

Mr. Prussing, a Los Angeles consulting engineer, originally presented his paper at the January meeting of the California Natural Gasoline Assn.

FIRE protection in plants consists solely in keeping liquids and heavy vapors within their containers. It is just that simple—and just that difficult. LP-Gases have three principal characteristics that require careful attention: (1) they are under pressure, (2) they are heavier than air when vaporized, and (3) they burn with high temperatures.

SAFETY

There is always an interval between a gas spill and the resulting fire, depending on how far the gas must go to find a source of ignition. In that interval, men must think first of themselves but they can be taught not to become panic-stricken. "Get out of the vapor cloud and come back into the area on the windward side of the vapor to size up the situation" is still good advice and not too hard to sell the average plant employee.

"Stop the flow of fuel," whether it is liquid or gas, is an obvious bit of advice too often overlooked. If the plant is well designed, operators will know almost as soon as they see the source of the blow how it can be controlled. Where valves are within the vapor area and cannot be operated without entering the vapor cloud, good judgment tells one to stay out until water-fog streams are available to make the job safe. Even in the absence of fire, one or two fog streams will blow away a vapor cloud and protect the operator while he closes a valve.

Small Fires Only

Of course, such advice is of value only in cases of operating failures of gaskets and packing, or the rupture of small lines that can be shut in. Vessel failures that dump thousands of gallons are obviously beyond the scope of this discussion. In such events there is only one sane thing for any man to do: that is to see that he, and everyone else he can warn, gets out of the vapor area before it ignites.

In refineries and other plants where LP-Gases are handled in close conjunction with other operations, sources of ignition are far more common than they are in the typical gas plant. Perhaps that is why we have more fires and fewer disasters in refinery gas units. The time element between vapor release and ignition is usually much shorter — hence the vapor cloud area is smaller — hence there is less vapor fuel for the initial blast.

However, another reason for better experience in the refinery fires is that water is readily available for fire control. Let me emphasize the word *control.* Modern practice in oil fires divides sharply between the control of running fires and those in open vessels. Fires in atmospheric storage tanks from which the roofs have been blown are still put out with foam and nothing has taken its place, in spite of all that has been done with other fire control devices. Modern air foam is a far cry from the old chemical foam systems that we built at such great cost 30 years ago, but it is still foam. There is nothing better where you have to deal with a great area of burning liquid surface.

In gas plants, however, fire extinguishment is wholly a secondary matter. The important job that must first be done is to neutralize the heat of the fire so that it will not cause pipes and vessels in the neighborhood to weaken, or their contents to expand and cause hydraulic failures. Only water can do this because only water is cheap and plentiful enough to soak up the tremendous heat of a gas flame. It is well to remember that regardless of whether it is liquid or vapor that is being spilled, the flame will continue so long as there is fuel to supply it. For that length of time, heat control must be maintained.

Using Water Fog

Modern technology of fire control is built around the use of water fog as a cooling agent. Even city fire departments have adopted water fog for use wherever they can get within striking distance of a fire with the relatively short throw of a fog stream. For gas fires, it is the only means whereby heat can be absorbed so that control of sources of fuel can be put into effect. Gas fires must be starved. That is, they must be extinguished by cutting off the supply of fuel. The problem lies in shutting off the supply. The hazard lies in the effect of the heat on surrounding structures while the control measures are being worked out. The great value of the modern fog technique is that it protects both men and exposed equipment from the heat of the fire.

Several years ago a midwestern plant installed a system whereby all bare LP-Gas vessels were protected by fixed water sprays. When a corroded line blew out and released a considerable volume of liquid gas (butane and heavier) it flashed from a nearby fire box. Water was turned on from remote control valves, about 100 ft away. The fire burned for about three hours but the coarse sprays gave adequate protection for the large lines, pumps, stanchions, etc. Small lines and electric conduit suffered damage. The tanks (about 10 ft x 25 ft horizontals) had no damage and even the paint was intact after the fire.

Designing Plants

Words alone cannot fully describe this modern approach to the fire problem, it must be seen to be appreciated, and it must be taught in fire schools.

Plant design must take into account the extreme potentiality of loss if large releases of liquid or vapor occur; hence design must be over-conservative. Maintenance and inspection must be provided for in the design, so that they will not be neglected in the field because units cannot be taken out of service

without complete plant shutdown. Operating mistakes must be anticipated. That is a penalty of having to deal with human beings. But insofar as possible, mistakes of judgment on the part of operators must be guarded against by anticipating what could happen, and working additional safeguards into the design. Instruction is fine but training in actually doing the right thing in a simulated disaster drill is a lot better. That goes for fire control training in the use of water fog, gas-borne fire-fighting powders and other modern techniques. Every plant operator should be shown fire training pictures so that he can see the limits of the various techniques and, if possible, plant operators should regularly have fire-pit training in which they actually handle the equipment.

Recent Research In Clothes Laundering

By ELAINE KNOWLES WEAVER, Ph.D.

HOME SERVICE

MOST of us are handicapped in our attempted work in laundering by our lack of knowledge about the job. Maybe some have helped with the washing at home or had a smattering of training somewhere along the line in college, but the colleges that give actual courses in it can be counted on one hand, and educational institutions doing research in the subject are even fewer. Thus we have to rely greatly on our home economics workers in industry to give us the ammunition.

In our research during the past two years we have done more than 12 tons of family washings. We have learned many things—particularly about automatic washers and dryers. Along with the family washings we have done standard soil, tensile strength, whiteness retention, and shrinkage tests. We have been faced with about every known wash-day problem. I believe that, in general, the results of the study can be summarized in one short paragraph:

> Most automatic washers will do a satisfactory job of washing providing there is a sufficient quantity of *good hot water*, a suitable detergent is used, a suitable combination of items constitute a load, and that the machine is not overloaded.

All of our tests with the automatic machine were duplicated in a good conventional machine in an attempt to answer some of the questions women asked, such as, "Will an automatic washer do as good a job washing as my old washer?" "Will the automatic use a great deal more water and soap?" "Should I keep my old washer for blankets, rugs, etc.?" "Are automatic washers

harder on clothes than the conventional?"

After wading through the 24,000 lb of dirty clothes we can answer some of the questions quite fairly. As to the soil removal ability—from our standard soil tests we found very little difference between the machines, either automatic or conventional. With the whiteness retention, however, the machines using generous amounts of rinse water gave better results. The water in the conventional machine was changed with each load for both washing and two rinses. In this way, load per load, we could tell women, when they asked, that clothes washed in the automatic washer were just as clean as those washed in the conventional, in some cases better.

The answer to the question, "Will an automatic use more water than the conventional?" is that it will depend entirely upon the practices with the conventional washer. If the wash and two rinse waters are changed at least once during the washing, approximately 95 to 100 gal. will be used. Automatics differ greatly in their water consumption. Four loads through a 30-gal. capacity machine means 120 gal.—80 to 90 for those using less and 160-180 for those using up to 45 gal. While in some cases the actual amount of water may not be more, it is likely that hot water consumption will be. In most automatic washers the rinse water is tempered to 100° — probably warmer than most women will make it in hand rinsing.

In our tests, we did not carry the water above 145°F. Studies from Penn State show better soil removal at higher temperature. We saw little appreciable difference in soil removal tests between 135° and 145°F, but when temperatures were below 130° the results were more noticeable.

Another question we constantly hear is "Will my 30-gal. water tank be large enough if I get an automatic?" Yes, if the woman doesn't attempt to wash more than two loads in succession. The temperature for that second load will be more suitable for colored than white clothes. Changing habits from one wash day to several a week is a happy solution for some women. For others it is a nuisance and one wash day still fits better in their routine. Regardless of washing habits, if a water heater is being replaced or is being purchased for a new house, I know I have your hearty agreement that we should encourage the selection of at least a 50-gal. capacity tank.

Hot water is an absolute essential but I would say that *hot soft* water should be one word in laundering. From problems we have encountered, I should say that hard water ranks highest in washability problems.

When we first started our study we were plagued with heavy, sticky lint deposits on clothes—particularly in one machine with high-speed centrifugal spins. It seemed that all of the women in Columbus who had bought this particular make were having similar trouble. Finally we tried putting each load through with hot water to which we had added a heaping cupful of a non-precipitating water softener. The results were astounding. In some cases we had such

Research in how to launder clothes—with both the life of the garments and the life of the housewife at stake—is still in its rudimentary stage, in the opinion of Dr. Weaver, home economics professor at Ohio State university, Columbus.

In one interesting survey conducted by Dr. Weaver and the O.S.U. staff, she reports a definite preference for an automatic clothes dryer over an automatic washer, if such a choice had to be made by the housewife.

Her paper was originally presented at the AGA home service workshop, Chicago, Jan. 4-6.

a high suds built up from retained soap that we got suds locks in the machine. It took about six washings of each of the family's clothes to break out the old soap and curd.

After that we had little or no trouble. My theory was that the soap deposit was built up and held the lint which would ordinarily wash off in the fabric. By use of synthetic detergents the curd and deposits were softened and in the high speed it was deposited in large splotches on the inner folds of the items —sheets particularly.

We did radical combinations of items for washing and got no objections from our cooperators. Of course, they didn't know that we put linens, towels, underwear, light colors that didn't fade, etc., in the same loads and they seemed to have as favorable appearance as when only like kinds of items were sorted out and washed together.

Throughout these long days of washing we made one definite conclusion: *If we had a choice between an automatic washer and no dryer or a conventional washer and a dryer, we would take the latter.* To me the dryer saves more time and energy than the washer. Our cooperators told us that their ironing time was cut pratically in half, to say nothing of their pleasure in appearance of corduroys, bedspreads, quilts, shag rugs, robes, pillows, slipcovers, drapes, and countless other pieces. Throughout the 18 months, as new items were added to the wash basket, there were items that were flattered by the dryer and needed no ironing—jerseys, twill, rough weaves and knits. If enough dryers get into homes I predict a change of fabrics on the store counters.

Gas dryers are your babies—I know of no piece of equipment that can provide more dramatic demonstrations than a dryer. We made no actual tests on dryers, as such, except with blankets.

Our most dramatic results were found in the washing and drying of blankets with automatic equipment. More than 500 washings and dryings took place. Before the formal tests started we washed more than 50 soiled blankets and found that we could get even the most soiled ones clean with a short soak, two minutes of agitation, and two one-minute deep rinses. While most direction books suggest 4 to 5 minutes wash, we stuck to the two minutes. Using the same procedure in each type of machine, we had no more or slightly less shrinkage with all-wool blankets in the pulsator and agitation-type machine than in the conventional. There was considerably greater shrinkage in the tumbler-type machines—entirely different techniques are necessary. We never tried to establish a method.

Oddly enough—and in conflict with traditional beliefs—blankets washed in water of 140°F shrank no more than those washed at 100°F.

Relaxation is a characteristic of blankets—whenever they come in contact with water. We found about 2 or 3 per cent in most cases. From this study we concluded that the major part of shrinkage and felting were due to agitation. Blankets washed in synthetic detergents shrank more than those in mild soap suds. However, our more recent experiences show that with sudless detergents a 20-minute soak period in water of 100°F and 15 seconds of agitation with two deep rinses of 15 seconds agitation in each, the shrinkage was hardly noticeable. In fact, we took some blankets previously washed and which were badly shrunken and felted and they came out 4 to 6 in. longer—and they were dried in the dryer, stretched, blocked, and brushed with a steel wire brush.

Dryer experiments with blankets were most successful. The degree of shrinkage was small and no felting occurred. We tried many methods — partial air drying and finishing in the dryer at low, medium and high heats. We reversed the process; we dried them completely at different temperatures—running each test five times on each set of blankets. The best results were achieved by preheating the dryer, adding five pounds of dry small cotton items such as towels and pillow slips as buffers — heating them — adding the blanket and mixing the items into it, drying to a point where a slight bit of moisture and steam were left. When the blanket was removed it was stretched and brushed. Those brushed between tests shrank less than those which were not brushed and were softer.

Growth of the Cycling Industry in Texas

By **ALLAN SHIVERS**
Governor of Texas

The spectacular growth of the cycling industry in Texas is reported in this paper by Governor Shivers. The paper was originally presented to the Interstate Oil Compact Commission in New Orleans, Dec. 6, 1949.

In a single month, Governor Shivers reports, 35 cycling plants in his state, connected to more than 700 oil wells and 500 gas wells, processed 65 billion cu ft of gas, turning out 78½ million gal. of products.

COMPARED in magnitude with the whole oil and gas business, the cycling industry is quite small, but its growth has been spectacular. Only recently, one of the trade journals reported that the capacities of our cycling plants have grown 38% in the past year. Another study revealed that in the last 10 years, the combined capacities of our natural gasoline processing plants and cycling plants in the Gulf Coast area alone have risen 970%.

CONSERVATION

These striking increases, of course, reflect the investment of tremendous capital in plants which can extract the maximum from the great condensate reservoirs that have been discovered. In Texas alone, some $250 million are invested in cycling plants. According to railroad commission reports, in one recent month our 35 cycling plants, connected to more than 700 oil wells and more than 500 gas wells, processed 65 billion cu ft of gas.

These plants turned out 78½ million gal. of products. About 6 out of 10 gal. were natural gasoline; more than 3 gal. were butane, propane, and the other light hydrocarbons. And after all this was extracted, 75% of the gas was put back into the ground for future use.

I think these are interesting facts, of significance to every person—along with the fact that this conservation effort was made at no cost to the taxpayers. On the contrary, our tax revenues automatically climbed in proportion to the production. In our state, a severance tax is levied on natural gas, based on a percent of value of the gas produced and sold. However, in recycling operations, the tax rate is applied to a percent of the value of the liquids extracted. In 1948 the recycled gas value for tax purposes amounted to about 20 cents per Mcf of input gas—four times the average market price of dry gas during the same period.

At the same time, establishment of these cycling plants has offered a greater choice of markets to the producers and

the land and royalty owners, and given local economy a decided boost in a number of communities. It has provided a more abundant power source, not only as gasoline for motor vehicles but in the liquefied petroleum gases that have brought modern conveniences to homes located beyond the utility lines.

A further important advantage to us has been in the marketing of butane and propane to the growing chemical industry in our state. It is not possible for me to estimate the full scope of this indirect contribution to an industry that has invested millions of dollars in plant facilities and which now employs thousands of people in Texas.

Yes, cycling is a little industry, a young industry—yet it has a daily productive capacity of more than 7 million gal. of natural gasoline and liquefied petroleum gas in the five states of Texas, Louisiana, California, Colorado, and Mississippi.

The prevention of waste is a story within itself, likewise a story that should be of tremendous public interest. For instance, in the Cotton valley operation in Louisiana, as a result of the unitized and cycling operation in that field, operators obtained a 25% increase in the amount of butane and heavier hydrocarbons. It is estimated that pressure maintenance in the reservoirs of that field will yield a gain of 6 million bbls of hydrocarbons.

I have not touched upon the great natural gasoline plants, of which we have some 485 in the nation, 150 of which are in my state. These plants are connected with nearly 54,000 oil wells and nearly 3000 gas wells in Texas alone, and produce each month some 213 million gal. of products from gas which, in many cases, came up from the earth with the oil.

It might be of some interest to mention the progressive operators in the West Pampa field in Texas, who pay a natural gasoline plant a service charge to re-pressure their field—because they estimate that in two years nearly half a million additional barrels of oil have been recovered as a result. In Louisiana, through the injection of both water and gas in the West Tepetate field, it is estimated that additional oil worth $44½ million will be recovered. At the Old Ocean field in Texas, 419 royalty owners and 10 lease operators formed one of the nation's largest unitization projects and expect to recover some 75 million more barrels of oil as a result of conservation practices that will be discussed here today.

Out of all this, one point stands clear: These things have come about through cooperation between individuals and their state conservation agencies which understand the local problems.

Industry-Wide Ignition Test Programmed

IT may now be only a matter of months—rather than years—before the gas industry has what it has long sought—a fully automatic range that is truly *cool*.

H. Vinton Potter

While such an appliance could not be in full-scale production ready for nationwide distribution within the year, its development to a point where it has been completely field tested, might be.

For now the AGA and GAMA have taken up the problem of improved range oven ignition on a formal basis, and have set in motion one of the most intensive coordinated research programs in industry history. The full weight of both organizations, plus that of individual manufacturers and utilities, is being placed behind the campaign on a scale that is without precedent.

Briefly, here's the way in which the program will work: Forty utility companies with diverse operating conditions have been selected to do accelerated field testing of ranges. All range and controls manufacturers have been invited to submit their models. Formal testing of the various entrants by utilities will get under way Sept. 1—although preliminary testing may be started as early as June 1. The test will last six months.

Existence of such a program was announced Feb. 15 by H. Vinton Potter, AGA coordinator of promotion, at the Pacific Coast Gas Assn.'s range and refrigerator council, held in Los Angeles. Mr. Potter joined Stanley H. Hobson, president of Geo. D. Roper Corp. and of GAMA, and W. M. Jacobs of Southern California Gas Co. in a three-way panel which traced the conception of the program and explained the participation of AGA, GAMA, and PCGA (represented by Mr. Jacobs) in it.

Enthusiasm which spread through the audience of utility men and manufacturers was manifested when a question period opened by meeting co-chairman Frank M. Seitz (Southern California Gas Co.) quickly resolved into a recitation of pledges by men representing both interests to give it their full backing.

The urgency of the program and the reasons for the priority being given it were recounted by the three panel members.

Mr. Jacobs felt that salesmanship was being affected by the adverse psychology of warm ovens, whose small effect on cooking by clock control through a certain amount of pre-heating of foods before the clock actually lights the oven was being turned to a sales advantage of electrical competition all out of proportion to its actual effect. The mere "feel" of warmth on the exterior of an oven had its psychological impact on a buyer who is looking for a truly cool appliance, he said.

Mr. Hobson, who presented several placards depicting his own company's steps in development of automatic ignition as an example of what manufacturers in general are doing, beseeched the utilities to give strong encouragement to manufacturers to produce the best possible type of ignition without prejudice.

Intimating that an electrical system of ignition might prove the most acceptable as a result of the tests, he begged sales managers to instill in their salesmen the idea of selling the *fact* that CP ranges are automatic, not why they are automatic.

Mr. Potter traced the background of the current program, starting with the development of CP, and outlined progress since its inception. Some companies, he reported, are still not in full accord with the CP idea. Less than 50% are actively promoting it. Less than 10% of national sales are CP models. Utility apathy in some quarters as well as the effect of psychology concerning pilot lights are to blame for a share of the difficulties.

Why have no more ignition ideas been advanced? Because, he said, only 200,000 CP ranges were sold last year, and those sales were divided among a number of manufacturers.

There are two obvious courses—to increase emphasis on "automatic" in advertising, and to boost research; to that end, $12,000 has been allotted out of PAR funds, and field testing has been heartily approved.

The committee at work on setting up the plan has accepted as one of its objectives the encouragement of the development of an oven ignition system that will consume no energy when not in use.

* * * * * * * * *

While it was the program's feature attraction, the ignition panel was only one of five important presentations arranged by co-chairmen Seitz and Jim Graham, rangemaker.

A dramatic demonstration of the association's plans for tieing in with the AGA "Spring Style Show" (spring range campaign), directed by Pat Shea, sales promotion committee head, was topped off with the introduction of Miss Spring Style Show of 1950. Nub of the "show" will be a coordinated dealer window display.

Servel's "Big Six" refrigerator drive was detailed by Regional Manager Seward Abbott. Why "six"? Because there are six partners in the American way of life from production to market, he explained; six geographical regions into which the country is being divided in the campaign; six Servel models; and it will run for six months, from April through September. Vacation flights, trophies, and citations will be awarded to highest-selling companies and individual salesmen. Servel is also reviving its "star salesman" plan, Mr. Abbott revealed. (For more information on Servel's promotional plans, see "Sales Slants" in this issue.)

NEGA President Eacker

YANKEE SHOP TALK

Natural gas big topic on NEGA agenda

Natural gas won't be slipping in the side door at this year's New England Gas Assn. annual meeting. It will be right up there on the stage when the forward-looking Northeastern gasmen gather in Boston March 23-24.

Such programming is a logical extension of developments in the past several months, when more and more New England eyes have been focused on the now almost certain coming of natural gas to this manufactured gas stronghold.

At least two topics included on the advance program released by Executive Secretary Clark Belden will directly concern natural gas, and they reflect the line of questions uppermost in the minds of management in the region. The first is public relations during conversions, a delicate and critical task, which will be discussed by an as-yet-unnamed executive of the Washington (D.C.) Gas Light Co. The second is pricing economics, which will be tackled by Robert E. Ginna, vice president, Rochester (N.Y.) Gas & Electric Corp., who has chosen the intriguing title, "Natural Gas for New England—Ratewise or Otherwise."

Concurrently, new ways of making gas are being scrutinized with increasing care. Recognizing this, the association has selected P. T. Dashiell, Philadelphia Gas Works Co. vice president and 1948 AGA Distinguished Service Award winner, to discuss new gas production processes.

Thirteen other papers will give the meeting a well-balanced program. Following election of new officers, Thursday morning, March 23, Clark Belden will present the association's annual report; Stanley H. Hobson, Roper Corp., will speak as GAMA president; E. H. Eacker, president of Boston Consolidated Gas Co., will deliver the NEGA presidential address; and D. A. Hulcy, Lone Star Gas Co., Dallas, will talk in his capacity as AGA vice president.

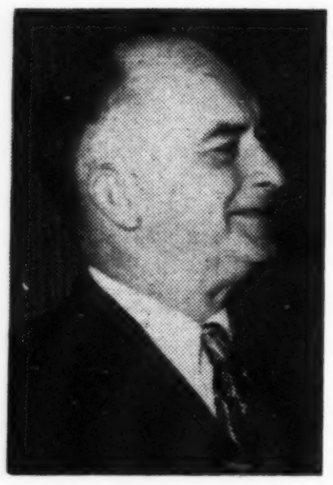
Thursday afternoon's session will open with R. J. Rutherford, president of Worcester (Mass.) Gas Light Co., talking on "PAR-Dollar Research Progress." Dr. Thomas H. Sanders, Harvard Business School, will follow with an address on "Corporate Accounting and the Public." Papers by the Washington executive and Mr. Dashiell will complete the day's offerings.

On Friday, a member of the firm of Booz, Allen & Hamilton, management counsel, New York, will discuss "Gas Appliance Market Surveys." "Gas for New Homes—Public and Private," by Roy E. Wright, NEGEA Service Corp., Cambridge; "Gas Industry Possibilities," by W. Paul Jones, Servel president; and "It's Easy to Sell Gas Water Heaters," by R. L. Towne, Rheem, New York, will round out the morning.

The final session will hear a paper by Frank C. Smith, AGA general promotional planning committee chairman and president of the Houston Natural Gas Corp., on "PAR Promotion in '50"; "Times A-Wasting!" by T. M. Joyce, Massachusetts Gas & Electric Assn.; Mr. Ginna's talk; and "Gas Company Financing Today," by Harold H. Young, partner in Eastman Dillon & Co., New York securities underwriters.

Sparkling Program Promised For AGA Operating Conference

E. G. Campbell of the Peoples Gas Light & Coke Co., Chicago, who as chairman of the AGA operating section is coordinating plans for the association's Distribution, Motor Vehicles and Corrosion Conference next April 3-5, last month promised delegates some choice program features for the Detroit meeting.



E. G. Campbell

Here are a few:

"Experience With Natural Gas in a Manufactured Gas System," a panel discussion with C. S. Goldsmith of Brooklyn Union as moderator.

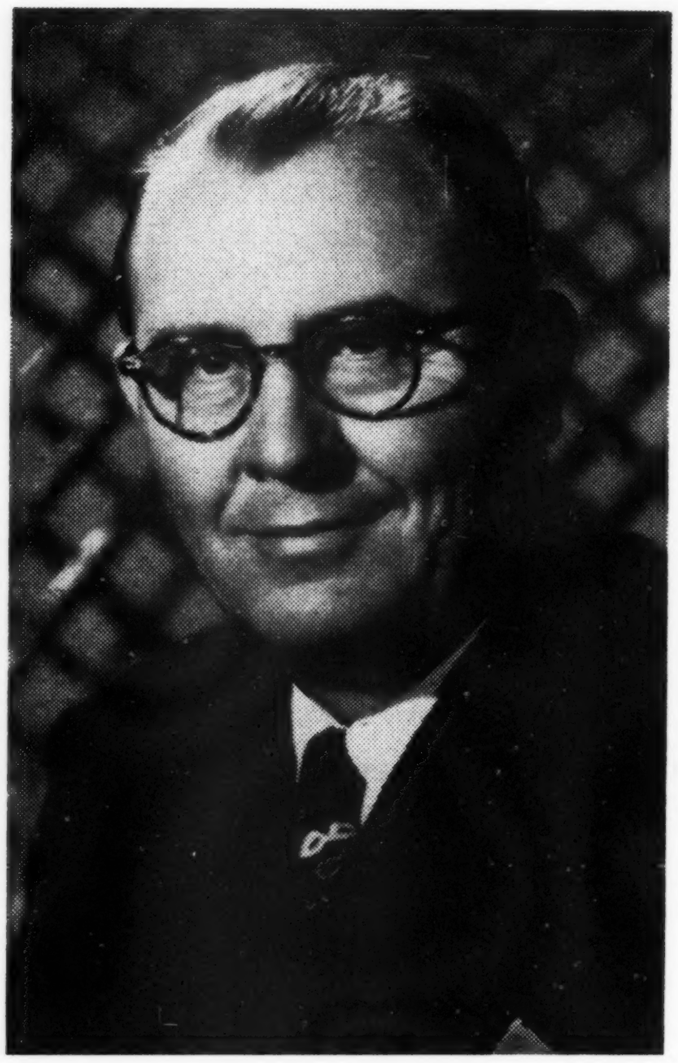
"Comparative Meter Performance Under an Extended Periodic Change Program," a talk by G. G. Dye, Southern California Gas Co., Los Angeles.

"How Detroit Increased Its Distribution Capacity to Supply an Additional 100,000 Space Heating Customers," by Karl Schmidt, Michigan Consolidated.

"Bringing Natural Gas to the New York Metropolitan Area," by F. G. Sandstrom, Consolidated Edison.

"Cathodic Protection on the Texas Gas Transmission Corp. Line," by R. J. Kuhn, New Orleans.

General sessions will be held each morning with parallel luncheon conferences on Monday and Tuesday, with a showing of industrial films on Wednesday.



SGA President Baxter

SGA STUDIES PERSONNEL

Employee relations in convention limelight

Patterns for improved employee relations in gas companies — analyzed from almost every angle — will take the lion's share of attention this month in Galveston, Texas, where the Southern Gas Assn.'s 42nd annual convention is to be held March 27-29. Southern will study employee relations in section meetings for the first time, as well as making it a general session topic.

Extra-industry speakers, widely respected for their research and experience in phases of employee relations, will carry the main load in Southern's coverage of the subject. Already scheduled to address general sessions is Merlyn S. Pitzele, labor editor of *Business Week*. Dr. George S. Benson, Harding college (Searcy, Ark.); Dr. Robert K. Burns, University of Chicago; and Dr. William R. Spriegel, University of Texas, will speak at employee relations section meetings to be held on the first and second afternoons, which also will include an address by M. V. Cousins, United Gas Pipe Line Co., Shreveport; and a panel discussion (What Is Your Personnel Problem?), with W. H. Senyard, Louisiana Power & Light Co., New Orleans, as moderator; J. C. Flanagan, United Gas, as executive's representative; E. A. Werner, Gulf States Utilities, Baton Rouge, as employee relations representative; C. H. Horne, Alabama Gas, Birmingham, as sales representative; Dr. Spriegel as management consultant representative; and C. S. Coates, Tennessee Gas Transmission, as operating representative.

Southern's three-day convention will not concentrate wholly on the employee relations question, however. Two governors, Allan Shivers of Texas and Sidney S. McMath of Arkansas, are scheduled to address general sessions gatherings of an estimated 1200 delegates. General sessions are to be held on Tuesday and Wednesday mornings, and a

general luncheon is slated for Wednesday.

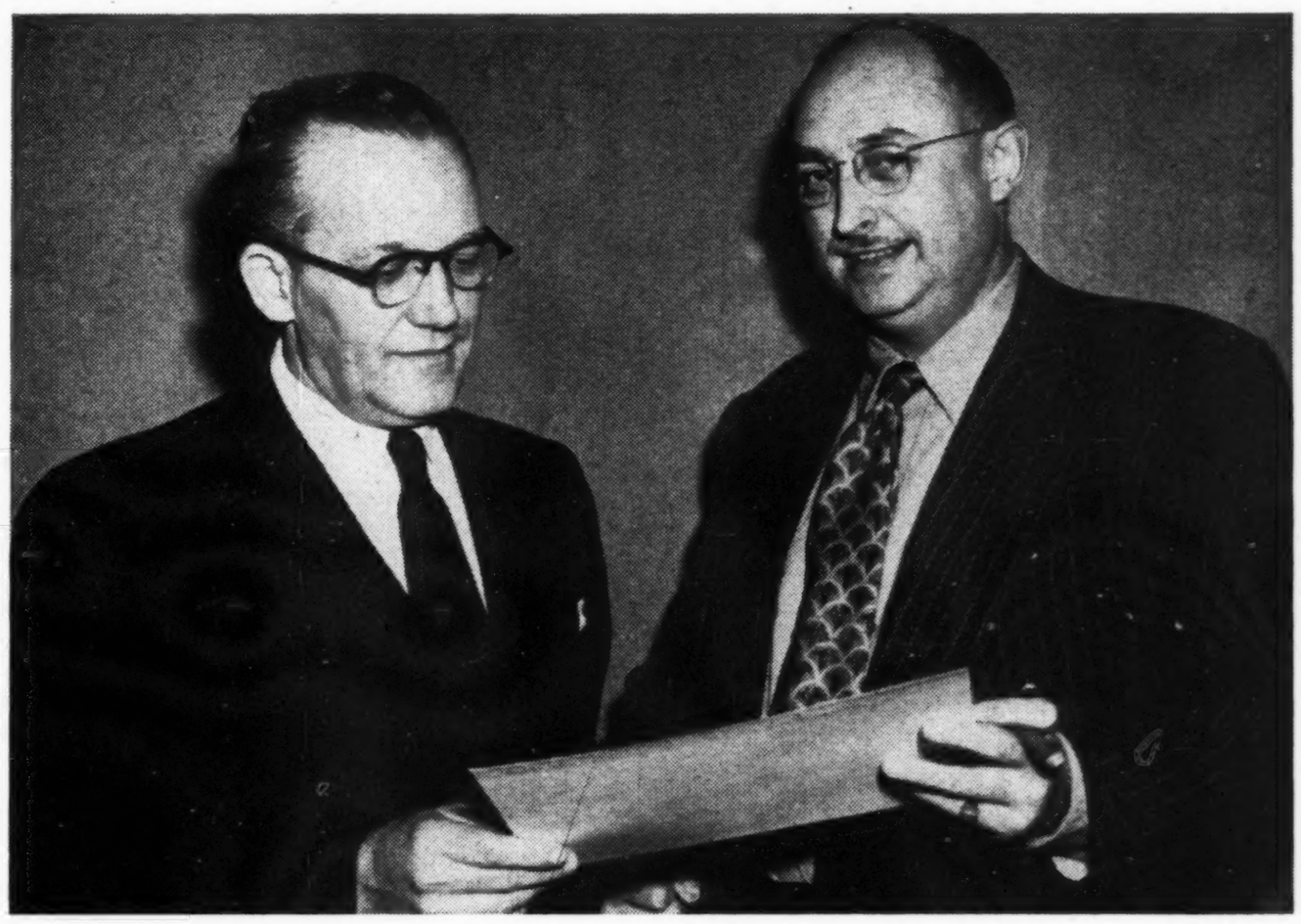
General Chairman J. H. Wimberly, Houston (Texas) Natural Gas Corp., has planned something of interest to almost everyone who will attend the convention. Almost 50 papers, reports, and panels are on the program.

AGA's president, Hugh H. Cuthrell, will speak, as will the outgoing SGA president, L. L. Baxter, Arkansas Western Gas, Fayetteville, and Managing Director R. R. Suttle, Dallas. Section meetings are programmed all around the general meetings, all day Monday and Tuesday afternoon, and full schedules of speakers and panel leaders have been planned for the industrial sales, commercial sales, residential sales, advertising, operating, transmission, and accounting divisions.

Miss Harriet Pruitt will conduct a home service workshop on the morning of March 27, during which a full-scale cooking demonstration will be given.

For all sections, Chairman Wimberly and his committees have insured thorough subject coverage by including speakers from allied industries most closely affecting individual problems, as well as inter-industry authorities on the various subjects.

Headquarters for the convention will be the Buccaneer and Galvez hotels. Sessions will also be held on the Galveston municipal pier for the southern gasmen—who will welcome gasmen from 13 southern and southwestern states.



Fred C. Utterback (left), Public Service Co. of Northern Illinois, new chairman of the Midwest Industrial Gas Council, presents testimonial certificate to Bert Roberts, Minneapolis Gas Co., his predecessor, at Jan. 27 meeting in Chicago. R. W. Millard, Michigan Consolidated, was named vice chairman and Paul F. Gibson, Western United Gas, was elected secretary-treasurer.

NEGA Operating Division Panel Attracts 350

The operating division of the New England Gas Assn. chalked up a big increase over past attendance records on Jan. 18, when excitement and interest in the expected arrival of natural gas brought 350 persons to the Statler hotel in Boston for an afternoon panel discussion on natural gas. This compares with the previous high for the division of 226.

Five members of the industry answered questions which had been propounded in advance or were asked from the floor. The session was introduced by E. H. Eacker, president of NEGA and president of Boston Consolidated. R. J. Rutherford, president of Worcester Gas Light, led the discussion. George C. Pearl, district gas engineer, the Connecticut Light & Power Co., Norwalk, as chairman of the division, presided at the meeting. Clark Belden, executive secretary of the association, was active in the arrangements.

Members of the panel were: C. L. Hulswit, Rockland Gas Co., Spring Valley, N. Y.; A. R. Bayer, assistant engineer of development and planning, the Brooklyn Union Gas Co.; John A. Boniface, planning engineer, gas department, Public Service Electric & Gas Co., Newark; Theodore C. Moran, general superintendent, Central New York Power Corp., Syracuse; R. B. Van Vliet, general superintendent, New York & Richmond Gas Co., Staten Island, N. Y.

Mr. Bayer said that Brooklyn Union has decided to remain at the present heat value of 540 Btu upon receipt of natural gas. Inasmuch as there is a possibility of a substantial rise in sendout Btu in the future an expenditure of several million dollars for adjustment of customer's appliances to accommodate an intermediate Btu of 570 or 600 is not warranted and can be avoided by remaining at the present thermal level.

Mr. Eacker reviewed the progress of the industry and predicted that the catalytic processes are still in their infancy. He expressed the hope that oil gases will be turned out that are 100% interchangeable.

Clifford Johnstone, Pacific Coast Gas Assn., was present at the meeting and talked briefly to the audience. The inspiration for the Pacific coast group came from New England, he said, and many of the same practices are used.

The following were elected 1950-51 officers of the operating division: Chairman, Edward F. Kennedy, Malden & Melrose Gas Light Co.; vice chairman, Donald Whitcomb, Providence Gas Co.; secretary-treasurer, Herbert C. Jones, New England Power Service Co., Boston; directors, James A. Bramblett, Fall River Gas Works Co.; Richard L. Fite Jr., Lynn Gas & Electric Co.; Andrew W. Johnston, Boston Consolidated Gas Co.; George C. Pearl, the Connecticut Light & Power Co.; Charles R. Prichard Jr., Gas Service Inc., Nashua; Myron W. Ryder, Cambridge Gas Light Co.

PCGA Adds Three Conferences

Dates for three section meetings not previously announced (*GAS*, January, p. 55) were added to the PCGA sectional schedule last month by Managing Director Clifford Johnstone.

All three, under the sponsorship of the sales section, are to be held this month. The home service group, under the chairmanship of Phyllis Snow, will meet March 22-23 in Los Angeles. Dan L. Turner's sales training "flying circus" will perform in Los Angeles on March 28, giving a repeat performance in San Francisco the following day.

Mr. Johnstone also announced an advance in dates for the distribution conference from April 27-28 to April 26-27.

Industrial-Commercial Sales Meeting Plans Told

Tentative plans for the AGA industrial and commercial sales conference, to be held in St. Louis April 4-6, have been announced by association arrangements spokesmen. The three-day conference will headquarter in the Hotel Chase.

The conference is the only national program for industrial and commercial gasmen, and is so designed this year that the one general session will be sandwiched between two days each of discussions relative to industrial and commercial gas matters. Leon Ourusoff, Washington (D.C.) Gas Light Co., chairman of the committee on programs and papers, has drawn up the subjects to be treated during the conference, with heavy emphasis on the problems and prospects to be faced with the coming to many new areas of natural gas.

In general session plans, talks are to be arranged on AGA functions in preparing national industrial and commercial advertising programs, aids to industrial and commercial selling, the commercial cooking gas user's evaluation of fuels, current research developments in industrial and commercial gas, and the competitive positions of gas and electricity. Others will cover dealer relations, commercial water heating and air conditioning, and plans for promotion.

Researchers Head for Cleveland

The Hotel Statler in Cleveland will be the site of the 1950 AGA research and utilization conference, association committeemen have announced. Dates for the conference are April 25 and 26.

Research and utilization conference is the only time in the year during which utility engineers can meet with men who design gas

CALENDAR

MARCH

AGA Great Lakes Personnel Conference—Palmer House, Chicago, March 10.

New England Gas Assn.—Hotel Statler, Boston, March 23-24.

Southern Gas Assn. Home Service Workshop—Galveston, Texas, March 27.

AGA Residential Gas Section, Mid-West Regional Gas Sales Conference—Edgewater Beach hotel, Chicago, March 27-29.

Southern Gas Assn.—Galveston, March 27-29.

The Maryland Utilities Assn.—Lord Baltimore Hotel, Baltimore, Md., March 31.

APRIL

AGA Distribution Motor Vehicle and Corrosion Conference — Book Cadillac hotel, Detroit, April 3-5.

AGA Sales Conference of Industrial and Commercial Gas Section—St. Louis, April 4-6.

National Assn. of Corrosion Engineers—Hotel Jefferson, St. Louis, April 4-7.

Mid-West Gas Assn.—Hotel Lowry, St. Paul, April 10-12.

Southwestern Gas Measurement Short Course—University of Oklahoma, Norman, April 11-13.

National Petroleum Assn.—Hotel Cleveland, Cleveland, April 12-14.

Eastern Natural Gas Regional Sales Conference—Hotel William Penn, Pittsburgh, April 17-18.

National Conference of Electric and Gas Utility Accountants—Brown hotel, Louisville, April 17-19.

Florida - Georgia Gas Assn. 1950 Business Conference—Biltmore hotel, Palm Beach, April 20-22.

AGA Domestic Gas Research & Utilization Conference—Hotel Statler, Cleveland, April 25-26.

Indiana Gas Assn. — French Lick Springs hotel, French Lick, Ind., April 28-29.

MAY

AGA Commercial Gas School—Hotel Gibson, Cincinnati, May 1-5.

Oklahoma Utilities Assn. Annual Convention — Biltmore hotel, Oklahoma City, May 4-5.

AGA Natural Gas Department Spring Meeting—Mayo hotel, Tulsa, May 8-9.

Liquefied Petroleum Gas Assn. Convention & Trade Show—Palmer House, Chicago, May 8-11.

American Foundrymen's Assn.—Cleveland, Ohio, May 8-12.

AGA Executive Conference — The Broadmoor, Colorado Springs, May 11-12.

Pennsylvania Gas Assn.—Galen Hall, Wernersville, Pa., May 16-18.

AGA Gas Production and Chemical Conference—Hotel New Yorker, New York, May 22-24.

National Restaurant Assn.—Navy Pier, Chicago, May 23-26.

The Natural Gas and Petroleum Assn. of Canada—Prince Edward hotel, Windsor, Ont., May 25-26.

Gas Appliance Manufacturers Assn. Annual Meeting—The Greenbrier, White Sulphur Springs, W. Va., May 28-30.

Short Course in Gas Technology—Texas College of Arts & Industries, Kingsville, May 29-31.

JUNE

Edison Electric Institute Annual Convention—Atlantic City, N. J., June 5-9.

Michigan Gas Assn. Annual Convention — Grand hotel, Mackinac Island, Mich., June 19-20.

New York-New Jersey Regional Gas Sales Conference—Essex & Sussex hotel, Spring Lake, N. J., June 19-20.

Canadian Gas Assn. Annual Convention—Manoir Richelieu hotel, Murray Bay, Quebec, June 19-24.

AUGUST

Pacific Coast Gas Assn. 57th Convention—Seattle, Wash., week of Aug. 1.

SEPTEMBER

New Jersey Gas Assn. Annual Convention—Monmouth hotel, Spring Lake, N. J., Sept. 8.

Mid-West Gas Assn. 27th Gas School & Conference — Iowa State College, Ames, Sept. 14-15.

OCTOBER

AGA Annual Convention and GAMA Exhibition of Gas Appliances and Equipment—Atlantic City, N. J., Oct. 2-6.

Texas Mid - Continent Oil & Gas Assn. Annual Convention—Dallas, Oct. 4-5.

National Safety Congress & Exposition of the National Safety Council—Chicago, Oct. 16-20.

National Metal Exposition—Amphitheatre, Chicago, Oct. 23-27.

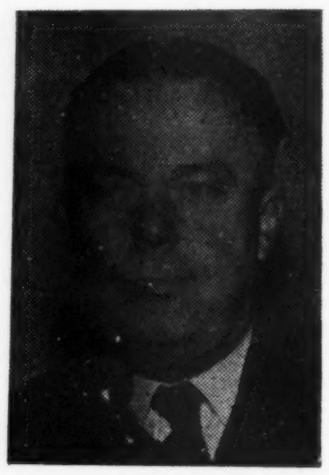
appliances for a note-comparing session on techniques and practices in installation, operation, and service of appliances. Modern architectural trends—which tend to place greater emphasis on compact construction—make necessary this cooperation between the men who test and lay out the appliances and those who are responsible for their placing and operation.

All phases of venting, ignition, and combustion will be treated at length.

SCMA To Hear Talk on Valves

J. H. Cope, senior sales engineer of Fisher Governor Co., Marshalltown, Iowa, will present a paper on "High Pressure Application and Design of Control Valves and Regulators" at the March 16 meeting of the Southern California Meter Assn. The meeting will be held at the Rio Hondo country club in Downey, Calif.

Bjork's Committee To Study AGA Code For Revising



Eskil I. Bjork

Eskil I. Bjork, vice president, The Peoples Gas Light & Coke Co., Chicago, has been appointed chairman of a committee to explore the necessity of revising the 30-year-old constitution and by-laws of the AGA, it has been announced by President Hugh H. Cuthrell. Other members of the committee are: John C. Flanagan, vice president and general manager, United Gas Corp., Houston; A. J. Gonnoud, president and general manager, Kings County Lighting Co., Brooklyn; Robert A. Hornby, vice president, Pacific Lighting Corp., San Francisco; and W. G. Rogers, vice president, The East Ohio Gas Co., Cleveland.

Since the original AGA constitution was put in effect, many new amendments have been adopted, and it is believed those amendments have produced inconsistencies which could be eliminated.

Penn Gasmen Select Peck

Irving K. Peck, vice president of The Manufacturers Light & Heat Co., Pittsburgh, is the 1950 president of the Pennsylvania Natural Gas Men's Assn., following election at the association's annual business meeting at Pittsburgh Jan. 19. Mr. Peck succeeds J. H. Isherwood, North Penn Gas Co., Port Allegany.

Irving K. Peck

Others on the slate included J. J. Jacobs Jr., Peoples Natural, Pittsburgh, vice president; P. L. Kesel, secretary-treasurer; Mark Shields, executive secretary, and B. H. Smyers, counsel. The latter three were incumbents.

All 11 directors were re-elected for another term.

Maryland Schedules Annual Meet

The Maryland Utilities Assn. will hold its annual meeting in Baltimore March 31, according to Roy Dunn, president. Headquarters will be the Lord Baltimore hotel.

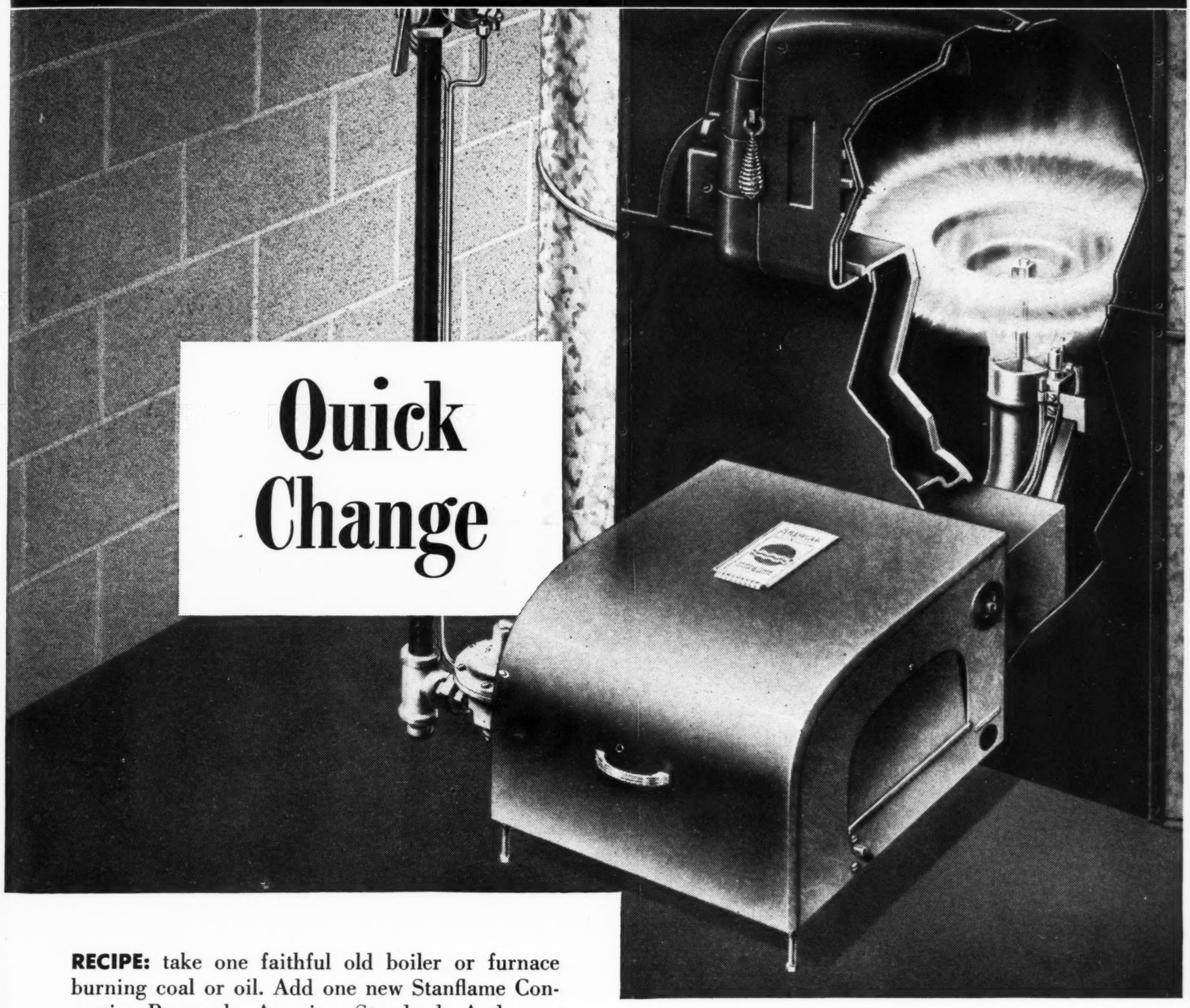
In addition to election of new officers there will be major addresses by Elmer L. Lindseth, president, The Cleveland Electric Illuminating Co.; Charles C. Galvin, vice president, The First Boston Co.; and Clem Whitaker, American Medical Assn.

Florida-Georgia Meets in April

"Full sail for sales" will be the theme of the 1950 Florida-Georgia Gas Assn. convention to be held April 20-22 at the Biltmore hotel, Palm Beach, Fla., according to a recent announcement by Frank S. Flesher, chairman of the convention committee.

AMERICAN-Standard

First in heating . . . first in plumbing



RECIPE: take one faithful old boiler or furnace burning coal or oil. Add one new Stanflame Conversion Burner by American-Standard. And overnight, you've got a work-saving, light-it-and-forget-it automatic *gas*-fired heating unit.

Yes, the brand-new Stanflame Conversion Burner is the easy way to make a quick change from other kinds of home heating to *gas* home heating.

The Stanflame is scientifically engineered and precision built for top efficiency and long service at very reasonable cost. It burns any kind of gas . . . manufactured, natural, mixed, liquefied petroleum, or LP-air . . . and burns it so you get complete combustion.

This new burner by American-Standard, making the comfort of automatic gas heating available at minimum cost to everyone, adds another to the American-Standard line of gas-fired products.

Whether your customers are interested in radiator heating, warm air heating, or winter air conditioning, when you recommend American-Standard Heating Equipment you can be sure of satisfied customers who will be real boosters of gas as a fuel.

LOOK FOR THIS

MARK OF MERIT

American Radiator & Standard Sanitary Corp. · General Offices: Pittsburgh, Pa.

Serving home and industry: AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • ROSS HEATER • TONAWANDA IRON

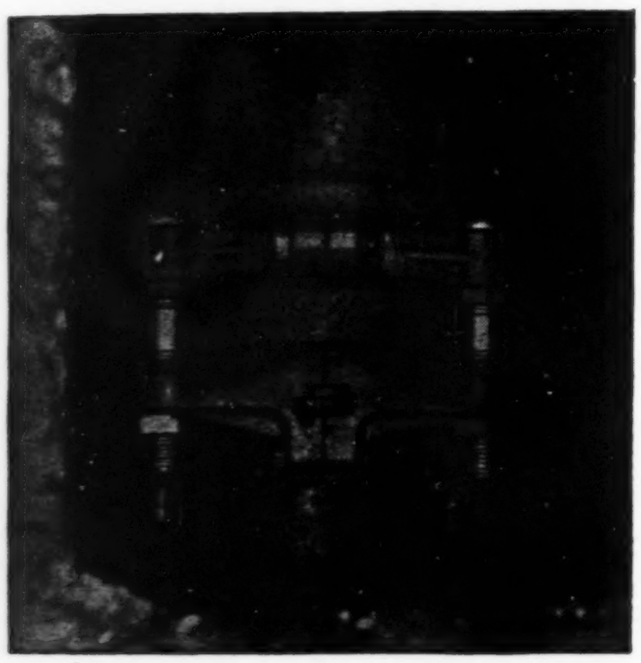
A SIMPLE SOLUTION for one of the GAS INDUSTRY'S *most trying problems*

the **NORMAC**

BELL JOINT CLAMP

SOLVES YOUR JOINT REPAIR PROBLEMS

6 inch Normac Clamp being lowered into hole for installation



6 inch Normac Clamp in service after installation

QUICK • EASY • PERMANENT

Installed in small pavement openings. Available in all standard sizes from 3" to 12". A simple set of tools cleans the joint, installs the clamp . . . often in only a quarter of an hour. SAVES TIME. SAVES MONEY and the repair is permanent. Designed for all conditions particularly where pavement repair costs are prohibitive. Such small opening repairs are scarcely noticeable when pavement is replaced.

Normac Clamps can be installed in large as well as small openings.

Norton - McMurray hold definite leadership in the development of methods for installation and rehabilitation work through small openings. We welcome the opportunity to help solve a problem you may have—tell us about it.

Write for our catalog describing our complete line of COUPLINGS . . . FITTINGS . . . SERVICE TEES and ELLS . . . SLEEVES . . . COMPRESSION-END COCKS . . . METER BARS and BRASS FITTINGS for copper pipe.

NORTON-McMURRAY MFG. CO.

39 SOUTH LA SALLE ST. • CHICAGO 3, ILL.

Method and product covered by U. S. Patents, Nos. 2,163,261 and 2,178,286.

EXPANSION

Heating Restrictions

More companies plan new customer additions

Public Service Co. of Northern Illinois, Chicago, will serve 7500 new gas heating customers soon, if the permission to take on the new load is granted by the Illinois Commerce Commission. The new customers would be added in suburban communities and outlying towns, company officials said.

Public Service still has 36,000 unfilled gas heating requests from prospective customers, although it has added 23,000 new heating users during the period since July 1946, when the regulatory body first restricted the addition of new heating loads. New customers have been taken on during this time as new facilities and additional gas became available.

The company intends to take the requested 7500 names from the top of its list if its authorization is received from the commission. Additional storage facilities recently completed will allow Public Service to handle the extra customers.

If the authorization is forthcoming, Public Service will have satisfied heating requests filed up to Apr. 1, 1949.

* * *

Two more companies currently report an improved supply situation which has either cleared, or will clear, the way for additional space heating installations.

The East Ohio Gas Co., Cleveland, revealed it added 14,000 new home owners to its customer list in 1949. East Ohio reported there now are 600,000 metered gas users in its district, half of whom use gas for heating. This compares with 70,000 gas heat users 10 years ago.

Building contractors estimated they installed gas heating in more than 90% of all new construction during the past year.

The second company, Peoples Gas Light & Coke Co., Chicago, hopeful that the FPC will approve its subsidiary Texas Illinois Natural Gas Pipeline Co.'s big line, sought Illinois Commerce Commission permission to install 5000 more units by July 1. Currently, the company's waiting list runs to 48,000.

Present customers using gas for house heating total 55,000, with 14,000 having been added in 1949 when completion of other transmission facilities increased supplies to the city from 268 MMcf to 484 MMcf per day.

Hearings on the proposed line, which would bring an initial 340 MMcf into the area, opened Feb. 20.

* * *

With the once-critical natural gas situation continuing to ease rapidly, Iroquois Gas Corp., Buffalo, N. Y., is getting ready to let in another batch of the 12,000 still remaining on the waiting list for gas house heating.

Last year the company issued 4000 space-heating permits. It is expected that more than that will be issued in 1950.

Ignition Systems

FOR TROUBLE-FREE PERFORMANCE

on your appliances

BASO SAFETY PILOT with Annulair PILOT BURNER

- **reliable**
- **efficient**
- **safe**

● An ignition system must light the main burner of your appliance—must light it surely month after month when gas pressures are high or low, when ambient temperatures are high or low, when the specific gravity of the gas varies, when dirt conditions are good or bad.

Milwaukee Gas Specialty Company provides such ignition systems in Baso Automatic Gas Shut-off valves and Annulair pilot burners. Baso, the safety pilot that revolutionized the thinking of an industry, receives its electrical energy from the Annulair pilot burner that was designed as an integral part of the ignition system to give the trouble-free performance demanded by gas appliance manufacturers and gas utilities.

Whatever the type of gas—manufactured, natural, or LP; whatever the kind of gas appliance—water heater, space heater, clothes drier, central heating plants large and small — the Milwaukee Gas Specialty Company has the ignition system for safe-lighting, 100% shut-off, and freedom from service. Satisfy yourself and your customers.

SEND FOR BULLETIN SC-300-31

MILWAUKEE GAS SPECIALTY CO.

MILWAUKEE 1, WISCONSIN

TWO NEW R-C BULLETINS

for smaller volume, moderate pressure applications

If you are handling gas or air for any of the purposes listed below, or for similar applications, you need these two new bulletins on R-C Rotary Positive AF Blowers and XA Gas Pumps.

1. Air for combustion with oil or gas burners, small cupolas, coke-fired forges, etc., in:

- Iron and steel works
- Food processing industries
- Neon sign shops
- Chemical processes
- Nonferrous foundries
- Asphalt heaters
- Smelters
- Oil-fired forges
- Bakeries
- Ceramic, brick and tile mills

2. Aerating and agitating liquids, in:

- Ice plants
- Sewage and industrial waste disposal
- Electroplating, engraving and electrotyping
- Fish tanks or trucks, also shallow lakes
- Oyster washing
- Water treatment
- Protecting dams from ice
- Fruit, vegetable and poultry washing and cooling
- Blending vinegar, fruit juices, etc.
- Compounding oils

3. Miscellaneous pressure or suction uses:

- Pneumatic conveying of grains, insulation and liquids
- Rock dusting in mines
- Dust collecting systems
- Low pressure sandblast
- Respirators and safety helmets
- Testing rubber balloons, etc.
- Cleaning forging dies, motors and machines
- Boosting inlet pressure of compressors
- Drying barrels and drums
- Blowing cake off filters
- Air seal for bearings of rock crushers, etc.
- Pneumatically controlled valves
- Steam garment presses
- Printing presses
- Paper folding machines
- Vacuum chucks
- Drying yarns, textiles, etc.

4. Gas Pumps for:

- Boosting fuel supply to industrial furnaces
- Chemical processes and refineries
- Boosting pressure from small gas wells
- Neon sign shops
- Gas sampling equipment
- Inert gas generators
- Exhausting oil vapors
- CO_2 collectors
- Boosting supply to gas engines

These bulletins bring you up to date on construction, capacities, regulation, control and other details on R-C Type AF Blowers (Bulletin 21-B-37) and Type XA Gas Pumps (Bulletin 31-B-17). Send for them or write us about your needs, for engineering analysis, without obligation.

ROOTS-CONNERSVILLE BLOWER CORPORATION
503 Oregon Avenue, Connersville, Indiana

ROOTS-CONNERSVILLE
BLOWER BUILDERS R-C SINCE 1854
ONE OF THE DRESSER INDUSTRIES

New Plant for Mettler

The Lee B. Mettler Co. of Los Angeles, Calif., moved into new and larger quarters on Feb. 15. Location of their new plant, which brings office and manufacturing facilities together for the first time, is 4366 Worth St. in Los Angeles.

Former offices were located at the same address—406 S. Main St.—for over 27 years.

Mr. James M. Kobabe, president of the company, points out that the rapid growth of his organization during recent years makes the present move necessary. The relocation of both factory and offices under the same roof will do much to facilitate manufacturing and shipping operations.

Mr. Kobabe also announces the recent incorporation of his company in the state of California. The organization will continue under the long established trade name of Lee B. Mettler Co. Larry Taricco is vice president of the company.

New Fluor Building Rising

A 9200-sq ft, two-story air-conditioned engineering building is now under construction at the main plant in Los Angeles of Fluor Corp. Ltd, gas equipment manufacturers, executive vice president J. S. Fluor Jr. has announced.

Erected as a part of the modernization program at the company's 27-acre plant, the new building will house five drafting rooms accommodating 30 men each, 25 offices for project engineers, a conference room, and—in the basement—a mailing room, specification room, printing room, and supply room.

Directing construction are G. W. Meyer, manager of lands and buildings, and Fred Hopkins, project manager.

Koppers Builds Weirton Ovens

Koppers Co. Inc., Pittsburgh, will install a new battery of 61 Koppers-Becker underjet coke ovens for Weirton Steel Co. at its Weirton, W. Va., plant, vice president Joseph Becker has announced. Contract for the job was let Jan. 27, and completion is set for the end of the year.

Arranged for blast furnace underfiring and equipped with self-sealing doors, the battery will be capable of carbonizing 1500 tons of coal per day.

Alterations and extensions of the company's byproduct and benzol plants are also included in the contract.

General Controls Expands

A new branch—the company's 22nd—has been opened in Newark, N. J., by General Controls Co., Glendale, Calif. The new office includes extensive warehouse facilities. William Buck, former sales engineer at the firm's Philadelphia branch, has been named manager at Newark.

Other General Controls organizational changes include the appointment of R. M. Korty as branch manager in St. Louis, the addition of Robert L. Day to the San Francisco sales engineering staff, and the appointment of Rudolph J. Rocdder, sales engineer, as refrigeration specialist in Los Angeles.

This is *not* a callback!

It's a happier day for dealers in your area (and a welcome relief for your own service crews) when new gas installations work to perfection, when callbacks are few and far between.

There are days and days like that in the life of the Bryant dealer. His customers, singing the praises of home heating and water heating equipment that never lets them down, have no cause to phone for servicemen.

Take a good look at some of his other advantages, too. A single source of supply for all types of quality gas heating equipment. A near-by distributor who offers prompt deliveries, engineering service for the tougher jobs, co-operation on advertising and promotion activities.

Yes, we're going to town with aggressive dealers, hoping to help them do better for themselves and a better job for you. May we tell you more about our plans? Just say the word.

Let the pup be furnace man ... and water boy, too!

bryant

AUTOMATIC HEATING

The most complete line of gas heating equipment in the nation

Bryant Heater, Dept. 181,
17825 St. Clair, Cleveland, Ohio

( ) Send me the new booklet that tells the Bryant story. ( ) Have your distributor call on me.

Name_____

Company_____

Address_____

City_____ State_____

Rockwell Moves Facilities

Rockwell Manufacturing Co., Pittsburgh, has moved the main part of its instrument manufacturing facilities from Pittsburgh to its Macnick division in Tulsa. Products involved were the orifice meter, integrator, and related parts.

Company officials state that the move is in keeping with the policy of manufacturing products as close to their markets as possible.

New Koppers Sales Section

An international sales section to manage and coordinate export sales and distribute "know-how" abroad has been announced by Koppers Co. Inc. President Gen. Brehon Somervell.

S. C. Whitehouse will serve in a new position as international sales manager, and Dr. W. C. Rueckel, manager of export sales for Koppers' engineering and construction division, will serve temporarily as international development manager pending a permanent appointment to the position.

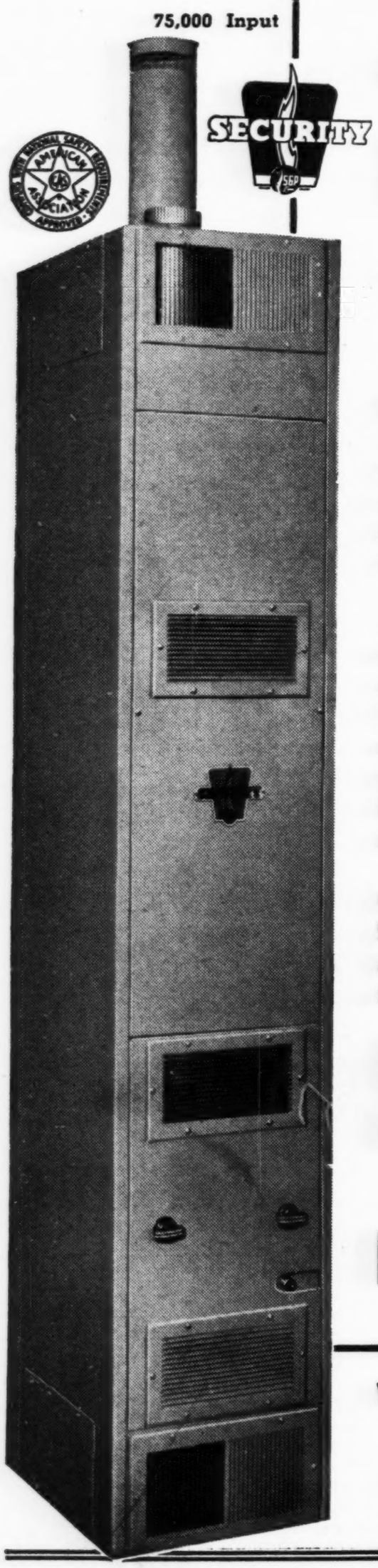
Power Plants Step Up Gas Use

Gas, which is already cutting heavily into coal's house heating markets, has registered another victory as an electrical energy producer, FPC records reveal.

During 1949 both gas and oil registered heavy gains, with oil showing a 55.5% increase over 1948 and gas moving ahead 15%. Coal, on the other hand, slipped by 15.6%. Gas consumption totaled 549.9 billion cu ft, coal dropped to 84 million tons, and oil use reached 66.3 million bbls, the commission report shows.

Eclipse Has New Home

Eclipse Fuel Engineering Co., Rockford, Ill., has anounced that its new building known as Plant No. 2 now houses the gas distribution, gas furnace, combustion equipment, and boiler departments. Located at 129 Morgan St., the plant is being used for production, assembling, testing, storing, and shipping gas cocks, meter bars, and a variety of meter accessories.



NOW...

a TRULY Forced Air

INN-A-WALL

...and you can employ duct work where necessary!

YES, sir . . . here is *the* answer to heating properly small homes without basements. Security's INN-A-WALL is an entirely new principle in forced air heating! Requires minimum duct work . . . may be used without ducts. Needs only 16 by 20-inch floor area.

The INN-A-WALL reverses the usual flow pattern . . . warm air comes out the *bottom*. This means *warm floors!* Warm air can be taken from all four sides . . . return air, from all sides at the top. Where ducts are required for distant rooms, permanent connection is made at the bottom. Completely assembled . . . ready to install. Casing height, 88 inches. Security breather tube automatically supplies air for combustion.

Other outstanding INN-A-WALL values are • Quiet positive blower • Fully automatic • Special Security high-efficiency burners • Complete adaptability to any floor plan • Amazingly economical in price.

SECURITY

Automatic, Gas-Fired

INN-A-WALL FURNACE

Write Today . . . don't delay. Get all the facts about this revolutionary new furnace.

SECURITY MANUFACTURING CO.

1630 OAKLAND STREET • KANSAS CITY 3, MISSOURI

REGULATION

Move For Re-hearing of East Ohio Gathers Speed

Although it held, in a 5-to-2 decision rendered early in January, that the East Ohio Gas Co., Cleveland, is a natural gas company under FPC jurisdiction, the Supreme Court has not heard the end of the case. The National Assn. of Railroad and Utilities Commissioners, a group of state regulatory men, promptly filed a memorandum in support of a petition for rehearing of the case.

Thirty-eight states and the District of Columbia joined hands in presenting the memorandum. In addition, the Ohio commission filed an individual petition as an intervenor, and the support of three other states was received too late to be included in the memorandum.

NARUC reports in its recent bulletin as an explanation of its stand: "The court held that the high-pressure pipelines of the company are not 'facilities' for 'local distribution' and hence are not exempt from the application of the Natural Gas Act. The legislative history of the act clearly shows that no such 'pressure' theory based on the mechanics of the industry, as applied by the court, was intended to be determinative of the question of jurisdiction under the act; rather that the Cooley doctrine, as applied in the case of Pennsylvania Gas Co. v. Public Service Commission, 252 U. S. 23, was to determine the limits of state regulatory authority, which the act was designed to supplement. The memorandum also points out the Illinois gas decision (Illinois Gas Co. v. Public Service Co., 314 U. S. 298), upon which the court placed heavy reliance, is not precedent in the present case as the Illinois Gas case involved wholesale sales of natural gas, while in the present case the East Ohio Co. is engaged solely in the local distribution of natural gas."

Meanwhile, in reply to an inquiry as to the 43 jurisdictional cases reportedly pending which would be affected by the decision, the FPC reported only eight which have been formally docketed. These include Central Natural Gas Corp., Eastern Indiana Gas Co., and Indiana Gas & Water Co. Inc., all of Indiana; Iowa-Illinois Gas & Electric Co.; Michigan Consolidated Gas Co.; and Consolidated Edison, Brooklyn Union, and Kings County Lighting Co., all of New York City.

A decision in the New York case was handed down by the commission several

PRIZES! PRIZES! FOR EVERY SALESMAN

All Aboard

1950 "COURT OF FLAME"

Automatic Gas Water Heater

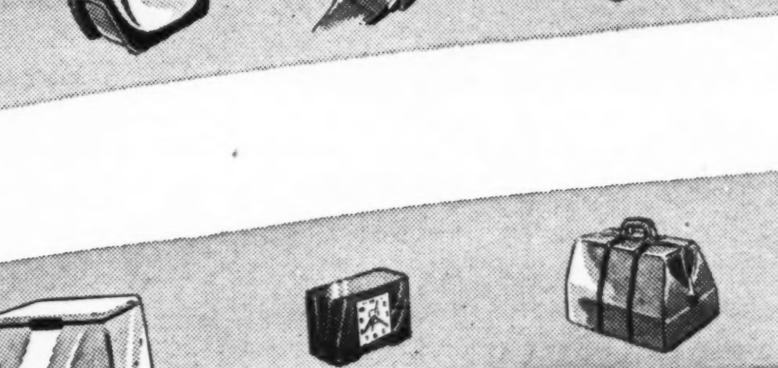
SALES CAMPAIGN

March 1 to September 30, 1950

ANNOUNCING a fortune in valuable merchandise prizes to keep water heater sales rolling at a faster pace in 1950. Every salesman can win. Every sale gets valuable points for prizes. The sky's the limit—no competition—no regional matching. Hundreds of top-quality, nationally-advertised products. Salesmen pick prizes of their choice. Write for big, 32-page prize catalog today — A FREE copy to every salesman — SEND NAMES WITH HOME ADDRESSES.

This Campaign Conducted by the Water Heater Division of

Gas Appliance Manufacturers Association, inc.
60 East 42nd Street, New York 17, N. Y.



RIDE THE GAS LINE—FASTER—MODERN

PRIZES WORTH $180,000.00. Here's everything salesmen want — watches, sports goods, silver sets, furnishings, toys, toggery—hundreds of practical and luxury items shown in 4-color reproductions.

AND SPONSORED BY

ALLCRAFT MANUFACTURING COMPANY, Inc.
AMERICAN GAS MACHINE COMPANY
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THE COLEMAN COMPANY, Inc.
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THE HOTSTREAM HEATER COMPANY
HOYT HEATER COMPANY
HOYT HEATER CO. OF NORTHERN CALIFORNIA
LAWSON MANUFACTURING COMPANY
LOVEKIN WATER HEATER COMPANY
MISSION APPLIANCE CORPORATION
MUSTEE HEATER COMPANY
NATIONAL STEEL CONSTRUCTION CO. OF INDIANA
PENNSYLVANIA RANGE BOILER COMPANY
PERFECTION WATER HEATER COMPANY
PIONEER WATER HEATER CORPORATION
REPUBLIC HEATER CORPORATION
RHEEM MANUFACTURING COMPANY
RUDD MANUFACTURING COMPANY
and their West Coast affiliate H. R. Basford Co.
SECURITY MANUFACTURING COMPANY
SERVEL, Inc.
A. O. SMITH CORPORATION
JOHN WOOD COMPANY

months ago, but a rehearing has been scheduled.

FPC said the similarity of the remaining 35 "does not constitute a prejudgment, the asserted similarity resting solely on the fact that the transportation involved . . . is confined to a single state," therefore declined to name the companies involved.

New Jurisdiction Fight

Debate on the question of whether the FPC should have jurisdiction over the issuance of securities by interstate natural gas pipeline companies got under way last month when House subcommittee hearings opened on the Crosser bill to amend the Natural Gas Act.

While the bill represents a concession to the SEC in that it eliminates the clause contained in a similar bill proposed last year which would have given joint jurisdiction over natural gas companies that are holding companies or holding company subsidiaries, its passage was expected to be fought at every turn by state regulatory agencies, utilities, and the Independent Natural Gas Assn. of America on the grounds of overlapping jurisdiction.

Nelson Lee Smith, FPC chairman, in testifying for the bill, stressed that the commission did not want to encroach on the jurisdiction of the SEC or "disturb" the jurisdiction of state commissions over local distribution companies.

"There is, however, an important group of major interstate nautral gas pipelines whose capital structures are at the present time free from any effective and continuing regulation—state or federal," he declared. Pointing to the tremendous increase in pipeline activity now and in the future, he held that there was a tendency of certain natural gas companies' capital structure to become topheavy with debt. "There are possibilities of unsound practices," he said, "which would lead to serious public detriment."

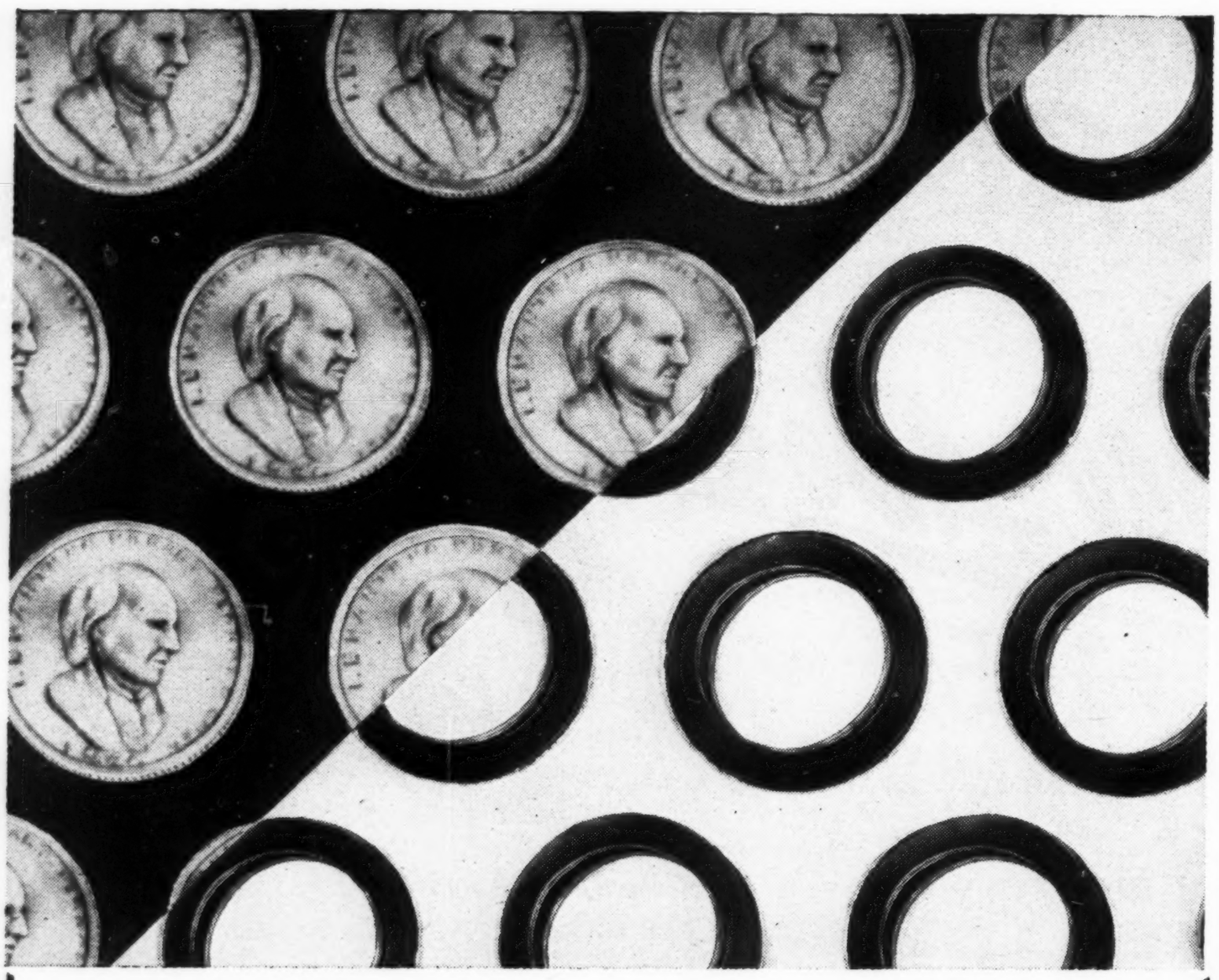
Mr. Smith advocated an amendment giving FPC power to exempt from the law any company engaged predominantly in local distribution of gas.

SEC gave its blessing to the proposed law.

'Minimum' Law Unwanted

A minimum price law for natural gas at the wellhead is undesirable, according to statements made by Guy Warren, speaking for the Texas Independent Producers & Royalty Owners Assn. in Dallas last month.

"It is almost certain that if the states prescribe prices within their borders, then the federal government will do it in interstate shipment," Mr. Warren said. "Any agency, whether state or federal which has price-fixing power, is more susceptible to the voice of the consuming public than it is to the producers and royalty owners." Thus, according to Mr. Warren, the minimum price legislation proposed would be indirectly harmful, rather than helpful, to the producers and royalty owners.



VULCAN DIAPHRAGMS EXCEL IN UNIFORMITY

Maximum uniformity of shape and thickness is one of the many advantages of VULCAN diaphragms. They are extremely flexible, yet they need no oiling—which means a cleaner shop and a saving of time and effort.

VULCAN Diaphragms practically abolish tie leaks, for they are securely fastened to the rings by VULCANIZING plus special wire, and are machine-tested for tightness.

Specify VULCAN Diaphragms, for more accurate metering and a cut in maintenance costs.

"THE MARK OF QUALITY"

Vulcan PROOFING COMPANY

FIRST AVENUE & 58th STREET • BROOKLYN 20, NEW YORK

THANK YOU, SEATTLE!

for your wonderful cooperation in helping conserve gas during the worst storm in Seattle's history. Your help is deeply appreciated by your fellow gas users -- and by the Seattle Gas Company.

. . . and may we ask for
A PAT ON THE BACK

for the hundreds of men in our plant, in our distribution and customer service departments, and for the women in our customer contact division, for the important, loyal and effective work they did in keeping Seattle supplied with the greatest amount of gas ever manufactured and delivered in the company's history.

- At the Lake Union plant in below freezing weather, with a forty-mile wind blowing and snow drifting, men working in the open and semi-open structures hardly took time out to warm their freezing fingers.
- All night customer service men fought their way through the blizzard to answer calls for service made necessary by frozen pipes and meters.
- The customer contact girls worked in shifts night and day.
- Superintendents, supervisors and foremen were at their "battle stations" around the clock without sleep.

May we ask for a pat on the back for the loyal, efficient and public-spirited employees of the Seattle Gas Company, who performed their work during the crisis in a manner "beyond the call of duty."

N. HENRY GELLERT
President

SEATTLE GAS COMPANY

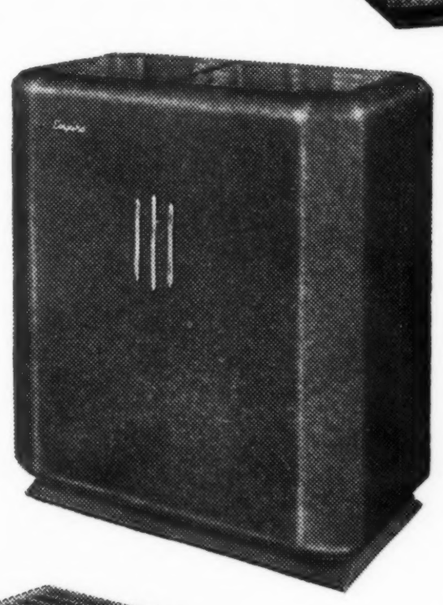
THIS AD was Seattle Gas Co.'s way of telling its cold-weather story to residents of the Northwest city, following the great blizzard which struck that area this winter. Earlier ads asked for customer cooperation—which the company got to a gratifying degree during its efforts to maintain service during the storm.

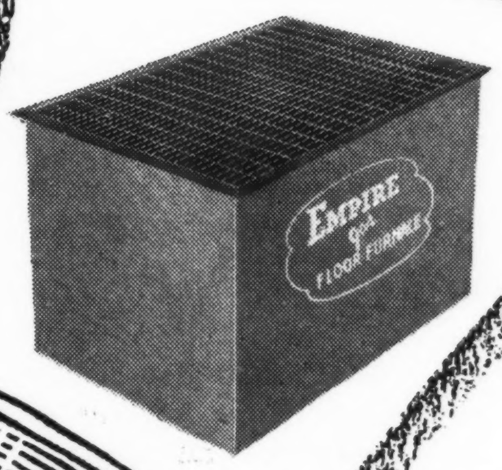
The Spotlight is on...

GREATER SALES WITH EMPIRE

THE WORLD'S LARGEST MANUFACTURER OF GAS FLOOR FURNACES

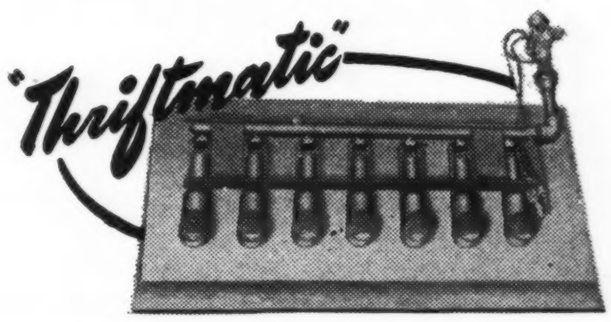
Users everywhere say EMPIRE Gas Heating Appliances are economical to operate, give trouble-free service and are skillfully engineered. This overwhelming customer preference proves that by presenting the EMPIRE line to your customers you make fewer service calls, reduce selling effort and increase profits.





EXCLUSIVE WITH EMPIRE

the famous...



Gas **BURNER**

IT'S ENGINEERED, NOT ADAPTED FOR THE AVAILABLE GAS SUPPLY

The THRIFTMATIC Gas Burner is engineered and scientifically tested at the factory to burn, efficiently and economically, any available gas supply. No adjustments required... simply install and give your customer and yourself years of worry-free service.

See The EMPIRE Representative in Your Territory or Write Us Direct

STOVE CO., BELLEVILLE, ILLINOIS

MANUFACTURERS OF GAS HEATING AND COOKING APPLIANCES

Langer Authors Amendment Confining FPC Jurisdiction

An amendment to the Natural Gas Act that would eliminate from FPC jurisdiction all gas companies whose operations are contained wholly within one state has been introduced to the U. S. Senate by Sen. William Langer (R., North Dakota).

The Langer amendment is concerned with Section 2, paragraph 6 of the Act, which reads: "(6) 'Natural gas company' means a person engaged in the transmission of natural gas in interstate commerce, or in the sale in interstate commerce of such gas for resale." Sen. Langer would add a clause to the paragraph, reading ". . . but does not include any such person all of whose operations are conducted within the same state."

The proposal follows closely the recent Supreme Court decision in the case involving East Ohio Gas Co. (*GAS*, Feb. 1950, p. 17), in which a 5-to-2 opinion included East Ohio in the companies under FPC jurisdiction, although the company transmits and distributes gas only in the state of Ohio.

FPC Plans To Force Open Bidding on Securities

FPC has issued a notice of proposed rulemaking which would amend its general rules and regulations to impose competitive bidding requirements on issuances of securities subject to commission jurisdiction under the Natural Gas Act.

The procedures involved in the proposed change embody the practice developed by FPC and the Securities and Exchange Commission with respect to competitive bidding.

Major purpose of the proposal is to broaden the application of FPC's present competitive bidding rule so as to apply to negotiated, as well as underwritten, issues. It would require, with some exceptions, that applicants publicly invite sealed bids at least six days before entering into any agreement for the security issue. After opening the bids, he would be required to file an amendment with FPC describing what he has done to comply with the competitive bidding requirement, summarizing the terms of the bids received, and stating the action which applicant proposes to take.

FPC Refuses To Reconsider Panhandle Service Rules

Four requests for rehearing in regard to the interim FPC order setting up emergency service rules governing deliveries of natural gas by Panhandle Eastern Pipe Line Co. during the current heating season, were denied last month by the commission.

The rules will remain in effect until May 1. They provide for curtailment of service when demands of customers exceed the Panhandle capacity. Requests for rehearing were filed by Ohio Fuel Gas Co. and the Public Utilities Commission of Ohio, and the East Ohio Gas Co. and Illinois Power Co. filed a petition for recession and vacation of the order or rehearing.

Major contentions of the applications and petition were that (1) FPC lacks authority under the Natural Gas act to adopt and prescribe the service orders, (2) FPC erred in its consideration of supplies available to Ohio Fuel and East Ohio (from sources other than Panhandle) in ordering curtailment of large industrial loads carried by the two companies, (3) the adoption of a curtailment plan with respect to large industrial gas users constitutes an invasion by FPC of the authority reserved to local bodies.

FPC Asked Propriety of Direct Industrial Delivery

Federal Power commissioners have been asked to intercede and render a verdict as to whether a pipeline company is within its legal right in by-passing local utilities to serve industrial customers directly.

Michigan Consolidated Gas Co., Detroit, through President Henry Fink, has charged that Panhandle Eastern Pipe Line Co. plans, in what he terms a franchise violation, to build facilities and serve directly two Detroit-area industrial concerns, Great Lakes Steel Corp. and Ford Motor Co. Mr. Fink contends that his company is entitled to sufficient quantities of natural gas (from Panhandle) at 16½ cents per Mcf for resale to Ford and Great Lakes, under terms of an existing contract between Panhandle and Michigan Consolidated.

Should Michigan Consolidated be supported by FPC in this opinion, Mr. Fink said that it would mean an additional revenue of $4 million annually—which would allow a 25% reduction in domestic rates.

FPC spokesmen have indicated that Panhandle would have to obtain certificates of public convenience and necessity.

METAL RIM

LMPCO

DIAPHRAGMS

FOR

SPRAGUE No. 1-A	IRONCLAD No. 1	ALSO:
SPRAGUE No. 1-D	TOBEY No. 1	ALL-LEATHER
SPRAGUE No. 2	Iron	DIAPHRAGMS for
SPRAGUE No. 3	Gas	TOBEY-A and
SPRAGUE No. 5	Meters	IRONCLAD No. 2

We have specialized in Metal Rim Diaphragm manufacturing, under the best engineering skill, for twenty-odd years.

Records definitely show the superior advantage of these diaphragms over all others, and this should give you that feeling of confidence which only years in service can produce.

Reasons Why—

METAL RIM DIAPHRAGMS

Measure Gas Accurately:—

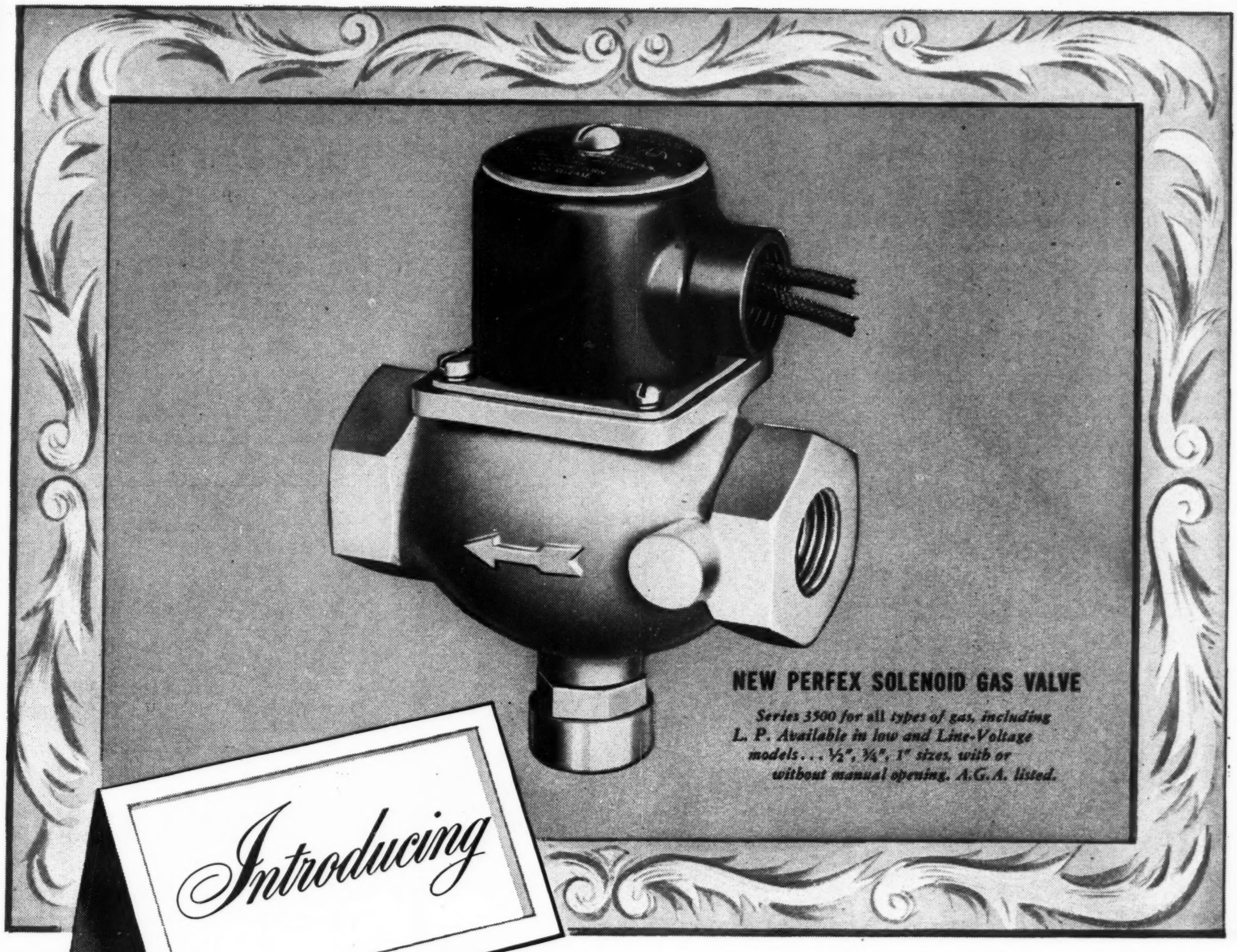
- NO WETTING
- NO BLOCKING
- NO FORMING
- NO STRETCHING THE LEATHER

Plus—

Our LMPCO oil which stays in the leather easily through a 10-year period.

LANCASTER METER PARTS CO.

Post Office Box 378 Lancaster, Ohio


NEW PERFEX SOLENOID GAS VALVE
Series 3500 for all types of gas, including L. P. Available in low and Line-Voltage models... ½", ¾", 1" sizes, with or without manual opening. A.G.A. listed.
Introducing

★ One Valve for All Gases*...Including LP PERFEX Solenoid GAS VALVE

For space heaters, floor furnaces, unit heaters, central heating plants, conversion burners...all domestic gas heating equipment

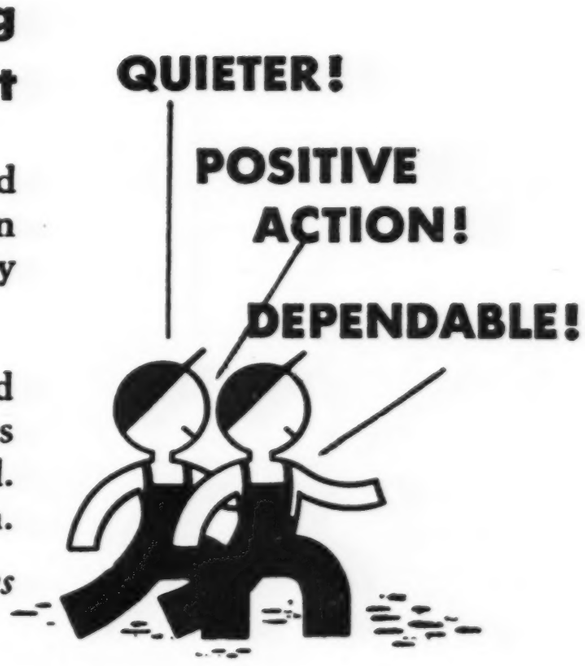
CUTS YOUR INVENTORY • No need to stock special valves for LP gas. One valve serves for all except sour gases.

QUIETER OPERATION • Valve seat is made of special synthetic – quieting annoying closing "click" of the solenoid. Compact, magnetic circuit is hum-free. Has aluminum-alloy body.

MORE POWER • Greater closing power and positive shut-off is assured by compression spring which assists heavy plunger assembly in closing.

EASY TO SERVICE • Take out one screw and the coil can be removed–take out four screws and the whole valve can be disassembled. Perfex planned for service man satisfaction.

**Except "sour" gases*



Dealers Who Know the Best Ask For

PERFEX TWIN CONTACT CONTROLS

PERFEX CORPORATION, MILWAUKEE, WISCONSIN • *In Canada, Perfex Controls Ltd., Toronto 1, Canada*

AUTOMATIC TEMPERATURE CONTROLS • INDUSTRIAL ENGINE RADIATORS • PROCESS COLOR PRINTS

FPC Peers at Phillips

Operations of Phillips Petroleum Co., Bartlesville, Okla., are scheduled to come under the searching eye of the FPC this month.

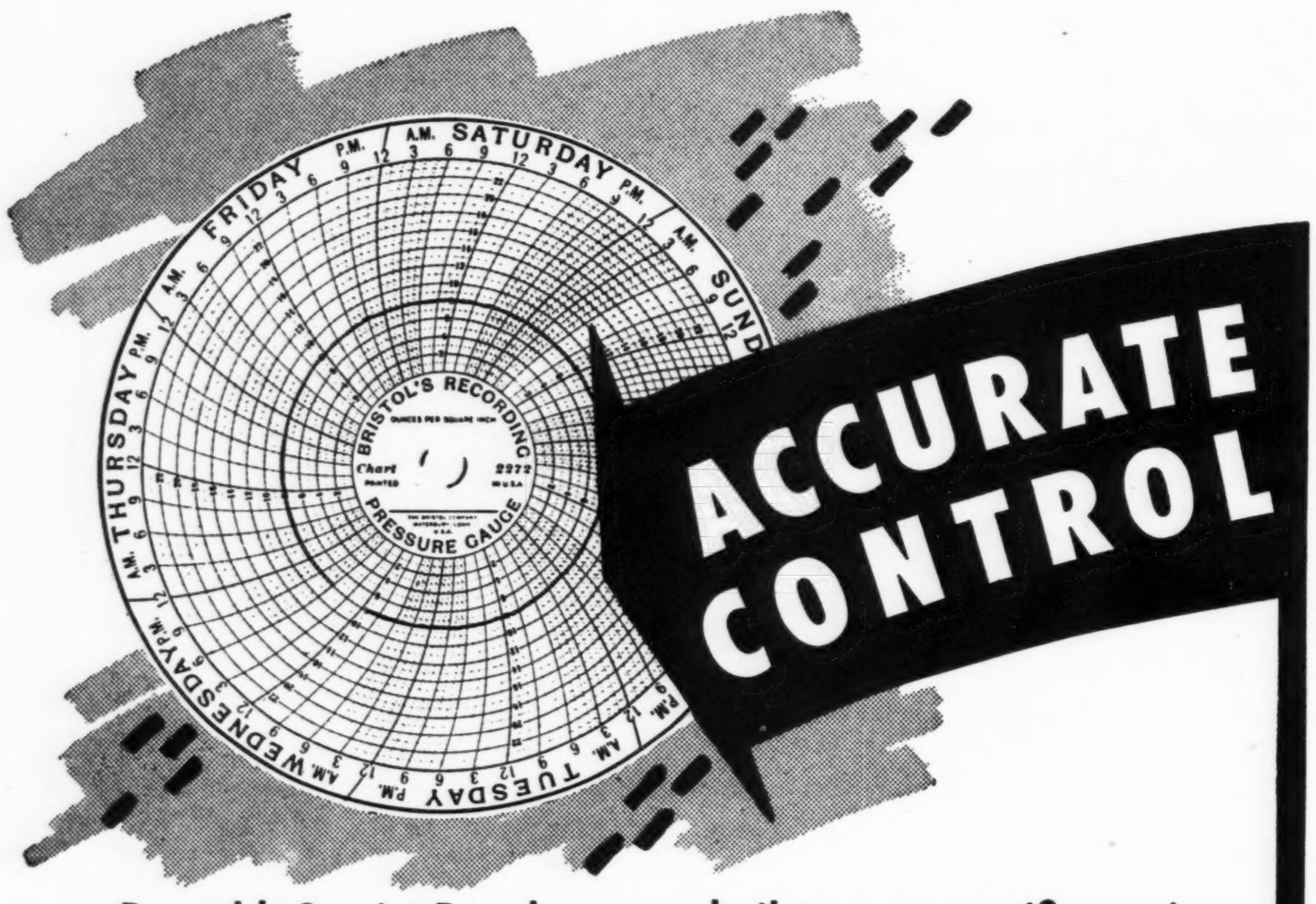
On March 20 the commission will open hearings in Bartlesville to determine whether the company is a "natural gas company" subject to the Natural Gas Act, and whether the rates it is charging for gas sold to Michigan-Wisconsin Gas Co. for transportation to Detroit, Milwaukee, and neighboring cities are "unjust . . . or preferential."

Phillips is the sole supplier of the long carrier, which recently went into operation. The Public Service Commission of Wisconsin, which together with the City of Detroit brought the complaints leading to the hearings, was cited as declaring that "no satisfactory basis has been established for the frequent and large increases in price paid for such gas which have taken place since the pipeline was projected and before substantial deliveries have even commenced."

"Restoration of the initial contract price would permit a resale price decrease of from 5 to 7 cents per Mcf," the complaint stated.

Meanwhile, another case which would directly affect rates to ultimate consumers—a question of whether Michigan-Wisconsin should trim 2 cents off its resale price to utilities—was under consideration. (See news story elsewhere in this issue.)

As for the jurisdictional question as to whether the company is a natural gas company, FPC reported that Phillips' activities cover production, purchase gathering, transportation and sales for interstate transport.



Reynolds Service Regulators are built to meet specific requirements—years of operation in the field through a complete range of operating conditions have proved not only their superiority but their durability. With parts so precisely machined for each model that they are completely interchangeable. The accuracy you require in performance is assured.

MODEL 10

Dead Weight or Spring Type, with or without Mercury Seal, or Dead Weight Safety Seal or diaphragm operated relief valve. All working parts are so accessible as to be interchangeable without removal from pipe line.

MODEL 20

Dead Weight or Spring Type, with or without Mercury Seal, or Dead Weight Safety Seal or diaphragm operated relief valve. All working parts are so accurate as to permit complete interchangeability in shop.

MODEL 30

For horizontal or vertical connections, with or without removable valve pocket. Available with either Spring or Dead Weight adjustment. With or without Mercury or Dead Weight Safety Seal or diaphragm operated relief valve.

Reynolds Gas Regulator Co.
ANDERSON, INDIANA, U. S. A.

GAS CONTROL SINCE 1892

FINANCIAL

Baltimore Rates to Dip With Coming of Natural

Savings to Baltimore residential customers will amount to from 14 to 31%, if rate schedules filed recently by Consolidated Gas Electric Light & Power Co. are accepted by the Maryland Public Utilities Commission, the Baltimore *Sun* reports.

Virtually everyone will save, the *Sun* said, and the average householder's share in the saving will run about 24% under current manufactured gas bills.

Conversion of an estimated 300,000 gas appliances in the city is expected to begin in May and to be completed next November.

Baltimore will receive natural gas from the Atlantic Seaboard Corp. transmission line, scheduled to be completed at the Baltimore terminus by May 1.

Commissions Study Hope Tariff

Hope Natural Gas Co.'s proposed tariff changes were scheduled for scrutiny by the FPC and the Public Service Commission of West Virginia in a concurrent hearing to be held in Charleston beginning Feb. 27.

The Clarksburg (W. Va.) company is seeking approval of rate boosts that would add $1,963,400 per year to its income. The changes, which were to become effective last November, were suspended by the FPC Oct. 31.

Five buyers would be affected by the increases: East Ohio Gas, Cleveland; Peoples Natural, New York Natural, and Manufacturers Light & Heat, Pittsburgh; and Mt. Morris (Pa.) Gas Co.

SALES PRESENTATIONS for representatives of the Toledo (Ohio) Pipe Threading Machine Co. will be made easier by the company's method of showing its model 999 2-in. power pipe machines, which are mounted on tracks in the luggage compartments of nine new business cars recently purchased.

Here's Gas Refrigeration's fighting challenge for '50

This bold new theme will echo across the nation in all ten of these powerful publications

Before Mr. and Mrs. America do any refrigerator buying in 1950, they're going to be challenged to "Look at *both* types!". . . and *then* decide. Aggressive ads will urge them to weigh carefully the *big differences* in the two kinds of refrigeration, and to consider that *only* Servel—the Gas Refrigerator—stays silent, lasts longer . . . because *only* Servel has no moving parts in its freezing system to wear and grow noisy. These ads are sincere. They're convincing. They will influence millions of people . . . make them more cautious buyers . . . rouse them to *see Servel* before they buy.

How can you reap the benefits of this stirring national campaign?

Remember—all business is local. So to translate this "new awareness" of the Gas Refrigerator into sales, you need strong, steady local advertising. And an alert promotional program—from window displays to floor demonstrations. So get set. '50 is the year for an awakened interest in Gas and Gas Refrigeration. Servel, Inc., Evansville 20, Indiana.

Appliance Shipments Continue To Gain Over Previous Year

Last November's shipments of gas appliances showed the usual seasonal decline from the month previous, but were still sharply above totals for the same month in 1948, the U. S. Department of Commerce has reported.

For cooking stoves and ranges, gas manufacturers totaled 269,616 units shipped, as compared with 291,030 for October 1949 and 258,193 for November 1948. Gas domestic heating stoves shipped in November of last year totaled 243,369 units, under the 263,134 for the month previous, but still high above the 189,515 reported for 1948.

Gas water heaters shipped were 138,106 in November, 154,074 for October, and 108,562 for November 1948. Unit shipments of gas water heaters totaled 27,402 for last November, 31,251 for October, and 13,360 for November 1948.

November Gas Sales up

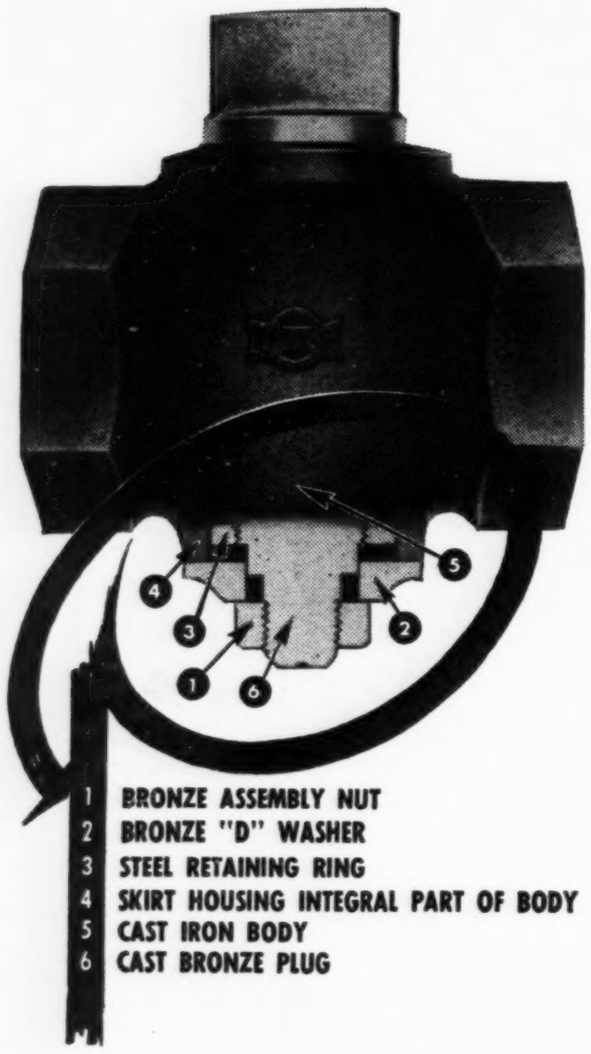
November gas utility sales totaled 3,111,506,000 therms, an increase of 13.2% over sales for November 1948, according to an AGA report. Sales for the 12-month period ending Nov. 30, 1949, showed a gain of 8.7% over the previous year.

Natural gas sales for November also registered an increase—up 15.4% from the 1948 figure—while manufactured gas sales were down 2.6% and mixed gas sales declined 10.1% from the previous November.

HAYS®

TAMPER-PROOF GAS STOPS

FEATURES


1 BRONZE ASSEMBLY NUT
2 BRONZE "D" WASHER
3 STEEL RETAINING RING
4 SKIRT HOUSING INTEGRAL PART OF BODY
5 CAST IRON BODY
6 CAST BRONZE PLUG

- Tamper-Proof Design with Non-Removable Plug.
- Extra Grade Gray Iron Body, Gas Service Bronze Plug.
- Steel Retaining Ring Prevents Removal of Plug.
- Steel Retaining Ring Assembled to Bottom of Plug—Eliminates Possible Damage to Precision Ground Surface of Plug and Body.
- Steel Retaining Ring Threaded and Staked to the Largest Metal Diameter on Bottom of Tapered Plug—Assures Retention without Distortion.
- Steel Retaining Ring Anchored without Drill Hole or Pin—Eliminates Possible Shearing of Plug.
- Steel Retaining Ring Located below Shoulder of Body—Permits Freedom for Service Adjustment of Plug.
- Steel Retaining Ring Recessed and Inaccessible within Iron Body—Gripless and Shearless.
- Plug and Body Precision Ground and Matched for Perfect Seating.
- Individually Tested Under Rigidly Controlled Inspection.
- Lubricated with a Compound of Greases Suitable for Use with Manufactured, Natural or Liquid Petroleum Gases.
- Obtainable in a Variety of Patterns.

Write for Folder 120–C

AVAILABLE IN

Black or Galvanized

Flat Head Less Check
Flat Head With Check
Flat Head With Lock-Wing

Sizes; ¾"—1"—1¼"—1½"—2"

Also HAYS STANDARD
HEAVY PATTERN IRON BODY GAS STOP

For 75 Years the Gas Industry has relied on HAYS Iron Body Gas Stops

MISCELLANY

Fighting Excise

Gas groups join in repeal try

The gas industry has teamed up with other industries affected by the excise taxes to form the National Committee for Repeal of Wartime Excise Taxes (*GAS*, Oct. 1949, p. 51). The committee is actively working for repeal of excises at this session of Congress, although current discussion on Capitol Hill seems to be along the line of reduction of some taxes and elimination of some, rather than the full elimination of all wartime excises.

Headquarters for the committee have been established at the office of GAMA in New York. Officers include Louis Ruthenburg, chairman of the Board of Servel Inc., vice chairman, and H. Leigh Whitelaw, managing director, GAMA, secretary. Among the committee members are: John A. Fry, president, Detroit-Michigan Stove Co.; Lyle C. Harvey, president, Affiliated Gas Equipment Corp.; Stanley H. Hobson, president, Geo. D. Roper Corp.; and R. J. Irish, executive administrator, A. O. Smith Corp.

Leaders of a wide variety of American enterprises have become members of the committee. Other officers include: Frank McConnell Mayfield, president, Scruggs-Vandervoort-Barney Co., chairman; Arde Bulova, chairman of the board of Bulova Watch Co., and Eric A. Johnston, president of Motion Picture Producers & Distributors of America, vice chairmen; and James J. Newman, vice president, B. F. Goodrich Co., treasurer.

Leon Henderson, former OPA administrator, is an advisor in the movement. Wilson W. Wyatt is general counsel.

In a statement to the committee, Beardsley Ruml said:

"The war-time excises have this in common, they are punitive and discriminatory as they were intended to be because of war-time necessities.

"The war-time excise taxes are evil taxes in peace-time. They should be completely eliminated.

"Half-way measures should be not even half considered. A half evil is evil still. Half unfair is still unfair. Furthermore, the consumer response to half-way measures will be far less than a half-way response, and the revenue recoveries from taxes on profits and income will not be what otherwise might be gained."

White-Rodgers in New Office

The White-Rodgers Electric Co., maker of automatic controls for heating, air conditioning and refrigeration, has announced the opening of a new office at 210 Long Lane, Upper Darby, Pa., which will serve Philadelphia and surrounding area.

Mr. H. F. Killinger is Philadelphia district manager.

White-Rodgers, with home office at St. Louis, also maintains offices in New York, Chicago and Detroit, with resident sales engineers in principal cities.

Post-Changeover Problems Plague Milwaukee Gas Light Co.

In the wake of its changeover to natural gas, Milwaukee Gas Light Co. last month was just beginning to dig itself out of a deluge of customer complaints that shook but failed to collapse its public relations structure.

Furthermore, hope for a windfall in the form of a 2-cent per thousand reduction in rates charged by the supplier, Michigan-Wisconsin Pipe Line Co., was dimming in mid-month, although early action by the FPC might be expected to assure this bounty for the company and its customers.

The company's recent difficulties comprised but another act in the natural gas drama, which has been full of climaxes from its inception. A skeptical common council last August finally approved the conversion but only after exacting a promise that rates would drop at least 20%.

After the gas had started flowing in from the Southwest and the conversion was complete (Jan. 7), the roof fell in. Customers not only registered the usual complaints about low pressure and slow heating but reproached the company bitterly for imagined bill increases. After the latter situation had progressed to the serious stage, the company felt compelled to take full-page ads in local papers to explain the situation.

It wasn't until early February that the furore began to die down. Careful investigation of all customer protests revealed that all, or nearly all, were without foundation.

Meanwhile, Milwaukee Gas Light, along with other Wisconsin utility customers of Michigan-Wisconsin, appeared to be getting a break when the FPC late in January rejected the pipeline company's proposed tariff, which was to go into effect Feb. 1, ordered that another tariff be filed, and that the interim tariff, which had been 30 cents per Mcf, be sliced by 2 cents as of Feb. 7. The state public service commission immediately ordered all utilities to pass the saving along, effective with bills rendered March 3.

Later, when the state commission learned the pipeline company would fight it out for the 30-cent rate, it decided that if no finding has been made by the FPC on March 3, the order to the utilities might have to be rescinded, since an upholding of Michigan-Wisconsin's contentions by the FPC might bring a retroactively effective permanent tariff of 30 cents.

The crux of the 2-cent debate was FPC's contention that this amount was allowed to cover expenses to the company for leasing Michigan Consolidated Gas Co.'s Austin and Goodwell storage fields, but that the leasing arrangement was never approved.

German Gasmen Tour U.S.

American gas industry was host last month to four German gas production experts as a part of a Marshall Plan study under the auspices of the Economic Cooperation Administration. The visiting experts are Dr. Heinrich Kaun, director of public utilities, and Dr. Ernst Schenk, general manager, gas division, City of Stuttgart; and Dr. Alfred Mette, director of public utilites, and Dr. Ernst Michel, general manager, gas division, City of Hamburg. They will make a six weeks' tour planned by ECA and AGA.

PEOPLE

HAROLD P. RISLEY has been appointed plumbing and heating contractors' representative for Public Service Co. of Colorado, Denver, succeeding A. ROY MOORE, who has been promoted to the position of supervisor of electrical dealers' representative. HENRY TAYLOR, member of the company's commercial department for 30 years, has been named gas appliance dealers' representative.

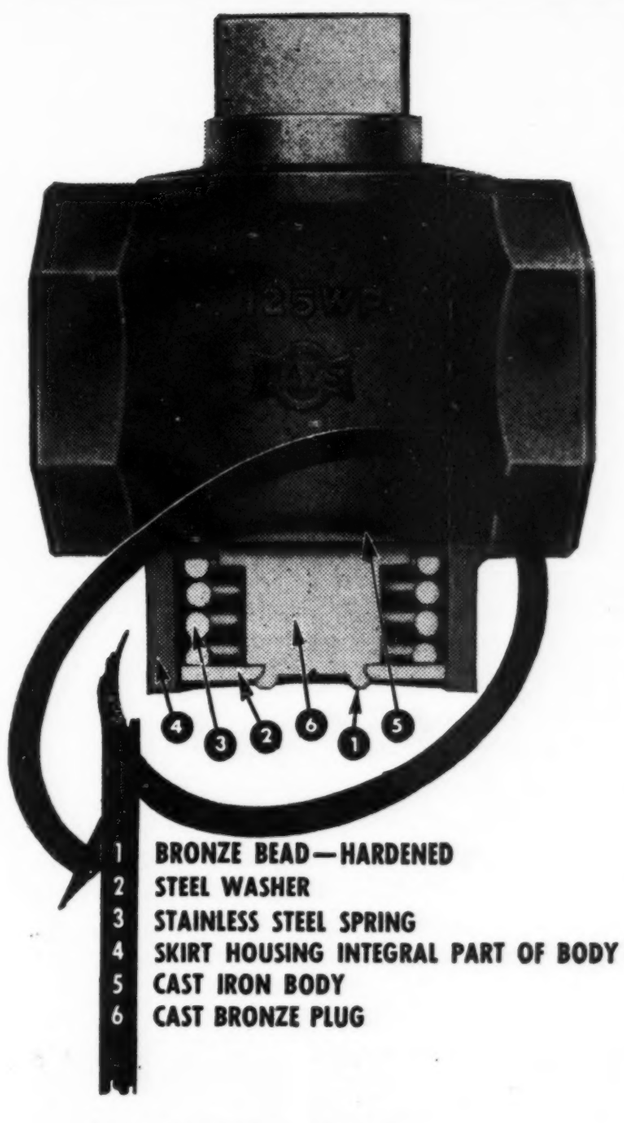
DR. F. L. JONES has been named manager of the research administration section of Koppers Co. Inc., Pittsburgh. Other appointments recently announced were those of DR. W. J. MONACELLI as assistant manager of the patents section, DR. G. A. WEBB as assistant manager of the development section, DR. R. H. HARTIGAN as assistant manager of the laboratory section, and B. K. POSPISHIL as manager of the experiment station at the Koppers Seaboard plant in Kearny, N. J.

H. B. HURLEY, former assistant regional manager for Continental Oil Co. in Fort Worth, has been named vice president of Republic Natural Gas Co., Dallas. Mr. Hurley was associated with Continental for 23 years prior to his resignation.

HAYS®

TAMPER-PROOF GAS STOPS

FEATURES


1 BRONZE BEAD—HARDENED
2 STEEL WASHER
3 STAINLESS STEEL SPRING
4 SKIRT HOUSING INTEGRAL PART OF BODY
5 CAST IRON BODY
6 CAST BRONZE PLUG

- Positive Tamper-Proof and Vandal-Proof Design.
- Non-Removable Plug—with Constant Spring Tension for 125# Working Pressure.
- Extra Grade Gray Iron Body, Gas Service Bronze Plug.
- Tough Stainless Steel Spring—Strong Steel Washer, Retains Plug in Body.
- Heavy Bronze Bead, Hardened—Holds Steel Washer to Bottom of Plug.
- All Assembly Parts Recessed and Inaccessible within Iron Body—Gripless and Shearless.
- Precision Ground Plug and Body—Matched for Perfect Seating.
- Lubricated with a Compound of Greases—Suitable for Use with Manufactured, Natural or Liquid Petroleum Gases.
- Spring Tension Allows Free Turning and Reseating of Plug in Body.
- Individually Tested Under Rigidly Controlled Inspection.
- Flow Way Equal to Rated Capacity of Domestic Consumer Meters.
- Obtainable in a Variety of Patterns.

Write for Folder 120-C

AVAILABLE IN

Black or Galvanized

Flat Head Less Check
Flat Head With Check
Flat Head With Lock-Wing

Sizes; ¾"—1"—1¼"—1½"—2"

Also HAYS STANDARD
HEAVY PATTERN IRON BODY GAS STOP

For 75 Years the Gas Industry has relied on HAYS Iron Body Gas Stops

E. R. Gilmore
. . . Rockwell

R. D. Jolls
. . . Gasmaco

C. W. Platt

C. V. Griffith
. . . Portland Gas & Coke Co.

H. N. Burnside

J. J. Byrne
. . . Empire

E. R. GILMORE has been appointed chief engineer of Rockwell Manufacturing Co.'s Macnick division in Tulsa. In 1936 Mr. Gilmore joined the Pittsburgh Equitable Meter division of Rockwell and served successively as project engineer, plant engineer, and chief engineer. For the past year he has been director of Rockwell's field research program.

RICHARD D. JOLLS has joined The Gas Machinery Co., Cleveland, as gas process engineer and will do general engineering work on gas plant equipment. He was formerly with the New England Power Service Co. of the New England Electric System. VERNON J. PUGH, former supervising engineer for J. F. Pritchard Co., has joined Gasmaco as a field engineer.

C. W. PLATT's resignation as secretary and treasurer of Portland (Ore.) Gas & Coke Co. recently was accepted by the board of directors. Mr. Platt has been identified with the company since 1910 when he joined its predecessor as an accountant. He is a past chairman of the PCGA accounting section. Mr. Platt will continue as a director of Portland Gas & Coke. The board also announced the election of C. V. GRIFFITH as treasurer and assistant secretary and of H. N. BURNSIDE as secretary and assistant treasurer. Both have served the company for 24 years.

JOHN J. BYRNE has been appointed advertising manager of Empire Stove Co., Belleville, Ill. In this newly created position, he will supervise the advertising activities of the firm's entire line of appliances. Mr. Byrne was formerly advertising manager for the St. Louis *Business Record.*

R. L. BOWLING, former sales supervisor for Lone Star Gas Co.'s Dallas distribution division, is the new dealer assistance department manager for the company's Fort Worth division of distribution. Mr. Bowling replaced WADE FORMAN, who has been named distribution manager at Grand Prairie; and DUDLEY PITTMAN, who has been in the Dallas sales department since 1939, succeeds Mr. Bowling. Other dealer assistance appointments include BENNETT M. ALLEN in the Waco division and O. B. WALKER, assigned to the Abilene division. LOUIS B. HULCY, former district manager at Grand Prairie, has been transferred to general division engineering with a special assignment on cathodic protection research. W. R. ZINN, former Hugo district manager in the Oklahoma division, has been named division accountant and engineer and will headquarter at Sulphur, Okla. Other assignments include J. W. INMAN, Sulphur district manager, to Bowie as district manager replacing T. L. TUCKER, who retired; C. M. BURKE, Cisco manager, to Sulphur; and E. L. EDWARDS to Hugo, Okla., replacing Mr. Zinn.

NEW for Gas Heating!

MULTI-STAGE FLAME CONTROL with a Single-Contact Thermostat!

It's GASAPACK Model 54

Steadier room temperatures never before possible — that's what you can *guarantee* when you equip your furnace or floor furnace with new GASAPACK. The GASAPACK, plus the Automatic Electric Top, Heat-Anticipating Thermostat, and Transformer, offers you a *new principle* in automatic gas heating. Not just pilot to high fire flame control, but Automatic *MULTI-STAGE heating* that keeps your furnace in perfect "tune with the weather" at any season.

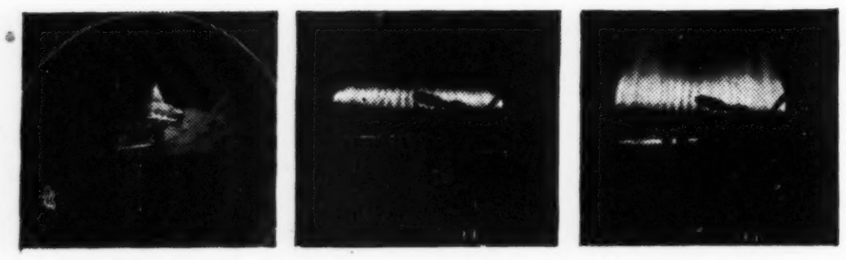
Your new furnace—and your customers — deserve this revolutionary new MULTI-STAGE gas flame control accuracy. Be sure you check the whole story on new A-P GASAPACK. Write for catalog and samples.

GASAPACK MODEL 54 GAS CONTROL

for Furnace and Heaters, with Automatic Electric Top, Heat-Anticipating Thermostat, and Transformer.

A single basic unit that avoids the need for separate controls like main valve, pressure regulator, pilot filter, A-cock, B-cock, and others.

Silent in operation • 100% Fail Safe • 100% Safe Lighting • 100% Shut-Off • A.G.A. Listed • Only ONE basic control to buy, install • Saves assembly and field installation time • Reduces control costs • Requires less space • Capacity, 70,000 or 100,000 B.T.U. on gases less than or more than 800 B.T.U. per cu. ft.



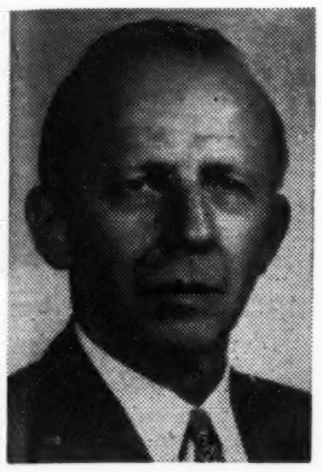
AUTOMATIC PRODUCTS COMPANY
2526 North Thirty-second Street, Milwaukee 10, Wisconsin

Millions Know the Satisfaction of

DEPENDABLE Controls

FOR HEATING . . . AIR CONDITIONING . . . REFRIGERATION

ERIC A. FLASCHAR has been elected president of The Stacey Bros. Gas Construction Co., Cincinnati, succeeding WILLIAM E. GRUENING. Mr. Flaschar has been general manager of the Stacey-Dresser Engineering Division of Stacey Bros., which is currently being moved from Cleveland to Cincinnati, where its operations will be coordinated with those of the parent company. ARTHUR E. HARVEY, who joined Stacey Bros. in 1938, was advanced from vice president to executive vice president, and HERBERT C. BRINKMAN, associated with the company since 1926, and its chief engineer for the past 10 years, was elected vice president.



L. W. Alberts

L. W. ALBERTS recently was named manager of the new synthetic fuels and chemicals department of Blaw-Knox Co., Pittsburgh. Mr. Alberts joined the organization early in 1949 and has devoted his time to the organization of this engineering activity. He was a pioneer in the development and operation of Fischer-Tropsch plants in Germany and served as a director of Ruhrchemie since 1929. Since coming to the United States, Mr. Alberts spent two years as a consulting engineer with the Bureau of Mines experimental station at Bruceton, Pa.

DONALD W. BEERY has been appointed senior engineer of the new department. He joined Blaw-Knox late in 1948.

MISS ANNE STELZL has been named to direct Seattle Gas Co.'s recently opened home service department. She will use the company's professional name of June Holliday. A gas kitchen has been installed for demonstrations of equipment and for cooking and baking schools. Miss Stelzl was formerly connected with The Brooklyn Union Gas Co., General Foods Corp., and Standard Brands Inc.

WILLIAM S. POTTER, who started as a bookkeeper with the Elizabethtown Consolidated Gas Co., Elizabeth, N. J., 38 years ago, recently was elected president of the utility by the board of directors. The board also announced the election of JOHN KEAN ROOSEVELT as board chairman and the addition of two directors—W. E. ROOSEVELT and ROBERT W. KEAN JR.

MISS DONNELL PICKETT has been named home service director for the Ardmore district of Oklahoma Natural Gas Co., Tulsa. Miss Pickett served as an assistant in the Stillwater, Okla., office during her senior year at Oklahoma A & M, and recently she has been assistant home service director at the company's Tulsa office.

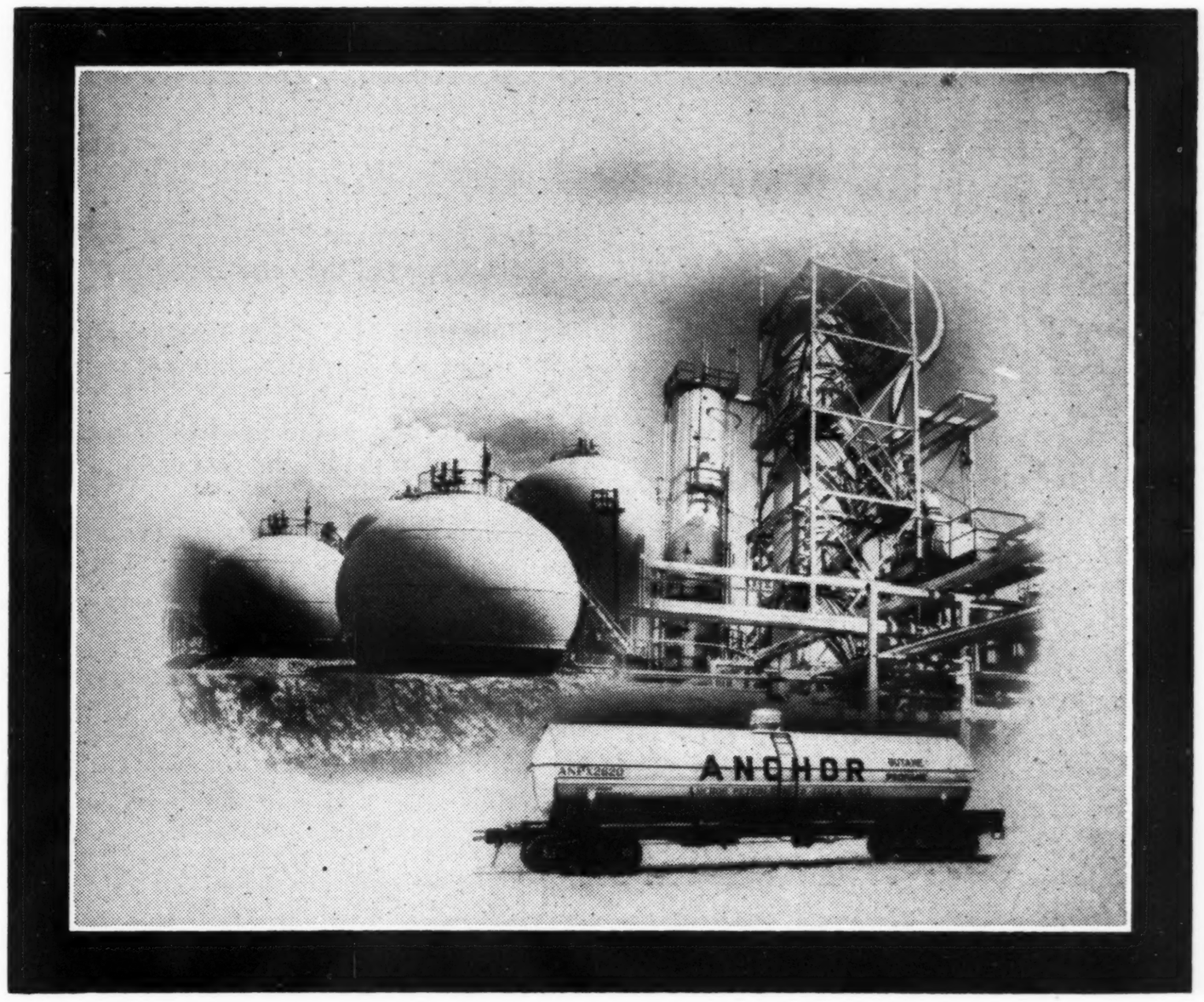
SANFORD M. WAGNER, formerly in charge of sales operations in the west for the Ethyl Corp., has been elected vice president in charge of sales for the company. Shortly after joining Ethyl in 1926 Mr. Wagner was assigned to organize sales and service activities on the west coast and to serve as Los Angeles division manager. When the sales department was reorganized in 1945, he became western region manager. Mr. Wagner's new headquarters will be in New York.

J. P. CARMICHAEL, L. A. GOODMAN, I. T. KENT, E .J. MAAG, and C. C. REDDING have been added to the sales organization of Detroit-Michigan Stove Co., Detroit. WARD JACOBSON has been appointed central division sales manager for the company, succeeding Paul Inskeep. (For more information on Mr. Inskeep and other personnel changes at Detroit-Michigan, see February *GAS*, p. 58.)

STAN J. ORMSBY has been appointed factory representative for Crown Stove Works, Chicago, in the Buffalo area. Mr. Ormsby was formerly connected with the Estate Stove Co. in that locality.

Wilma Lohmeyer

MRS. WILMA LOHMEYER has been appointed to reestablish and direct the home economics department of the Honolulu Gas Co. Ltd. She will set up a program consisting of home calls, kitchen planning, and cooking demonstrations to dealers, homemakers, club groups and home economics classes. Mrs. Lohmeyer was formerly the western representative of the Wheat Flour Institute of Chicago, as well as an instructor at the University of Illinois and dietitian for a number of hospitals and institutions.



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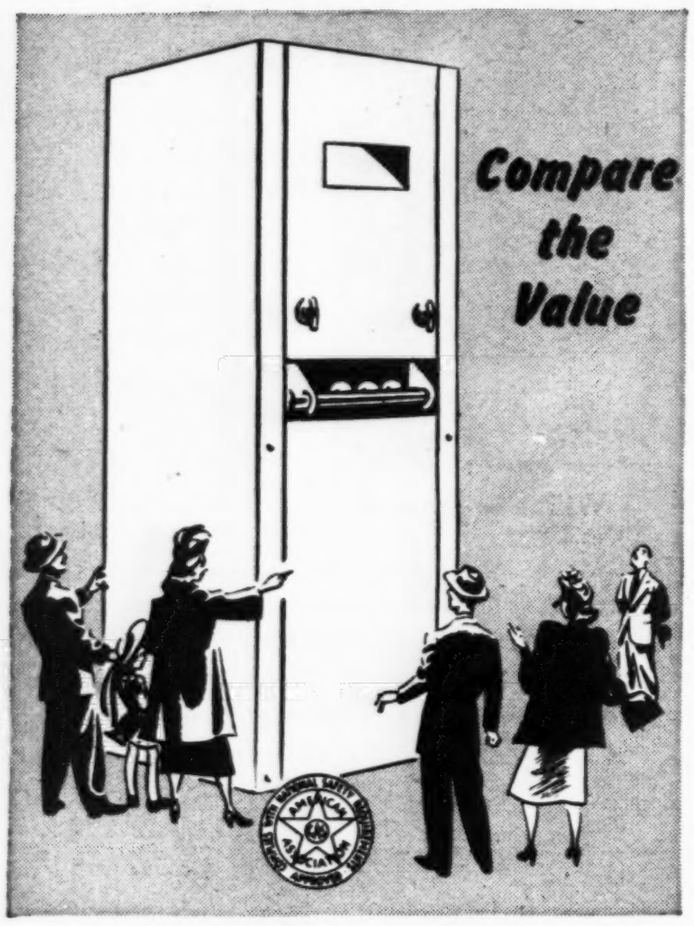
LP-Gas for: Stand-by Plants - Peak-load Demands - Industrial Plants - Cities and Towns

From our strategically-located plants we are able to give quick delivery on high-quality ANCHORGAS, Butane-Propane. Shipments by rail, water, or transport. For dependable gas service, call us before you renew your contract. Ask about Anchor's special contract.

ANCHOR PETROLEUM COMPANY

Atlas Life Bldg. Tulsa, Oklahoma



NEW
Hendy "60"

A giant in performance and value, a midget in size—that's the new Hendy "60," *made by the makers of the famous Henderson Clipper.* Only 52" high, by 18" x 30", the Hendy "60" fits in a small closet or corner. Yet it provides all the luxury of high-quality, blower-type central heating (with ducts) at a cost competitive with ordinary heating methods for smaller homes.

60,000 B.t.u. Input

- **VENT AT TOP, FRONT**— saves space and facilitates installation.
- **CLIPPER-TYPE, HENDERSON-DESIGNED BLOWER,** precision made in our own factory.
- **HIGH-EFFICIENCY HEAT EXCHANGER** Multi-stream principle, same as used in our Clipper and Clipperette.
- **EVERY UNIT FACTORY-ASSEMBLED** and tested in actual operation.
- **SPECIALIZED EXPERIENCE**—This new unit reflects many years' experience in manufacturing blower-type, gas-fired furnaces exclusively.

Write or wire for catalog-sheet, prices, dealer-opportunities

HENDERSON
FURNACE AND MFG. CO.
Sebastopol, California
CLIPPER · CLIPPERETTE · HENDY "60"

W. HERBERT GILL, commercial manager of the Washington (D.C.) Gas Light Co., has been appointed assistant to Everett J. Boothby, president, filling a recently created executive post. Succeeding Mr. Gill as commercial manager is H. CLAY WHITEFORD, who has been serving in the company's Maryland subsidiary. WARREN D. HALEY has been named manager of the Washington Gas Light Co. of Maryland. CARROLL W. FORD has replaced R. C. BREHAUT as manager of the Rosslyn Gas Co., another subsidiary.

W. E. PARROTT, manager of the sales and marketing department for Ebasco Services Inc., New York, since 1941, has been appointed a general consultant for the firm. PAUL D. BROOKS, associated with Ebasco since 1938, has taken over Mr. Parrott's former position. The company also announced the election of T. G. SEAL as vice president. Mr. Seal is a director and general consultant for Ebasco's Middle South Utilities Group of Client Companies.

CHARLES C. JAMES has been elected president of Roberts & Mander Corp., Hatboro, Pa., succeeding HENRY S. MINSTER, who resigned. Mr. James, who is associated with a New York firm of management engineers, has also replaced WILLIAM A. JAEGER as treasurer of the company.

EDWIN L. MALM has been appointed manager of the hot water and steam accessories division of United States Radiator Corp., Detroit. Mr. Malm has had 25 years of experience in the heating industry.

- OBITUARIES -

A. B. HARPER, 52-year-old Arkansas utility executive, died recently in New York City. Mr. Harper was president of the Fort Smith Gas Corp. and president and general manager of the Arkansas-Oklahoma Gas Co. and the Southern Gas Producing Co., both of Fort Smith.

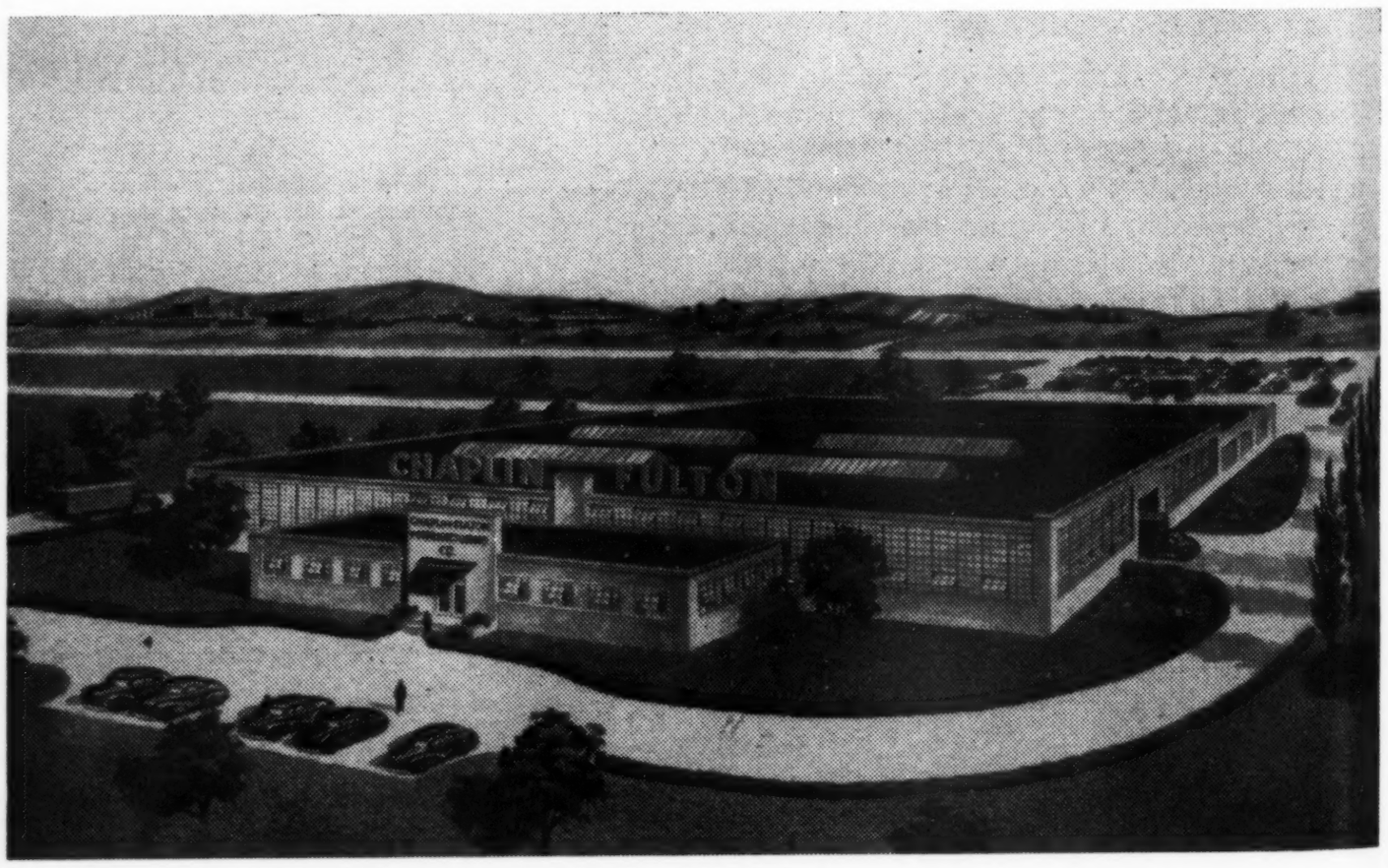
L. W. Childress

LEVI WADE CHILDRESS, 73, board chairman of Laclede Gas Light Co., St. Louis, died Jan. 31 after a heart attack. Mr. Childress headed Laclede Gas from 1938 to 1947, when Robert W. Otto succeeded him as president. He organized the Mississippi Valley Barge Line Co. in 1929, served as its president until 1947, and was board chairman thereafter. Mr. Childress was one of the founders of Governmental Research Institute, a backer of the Central Institute for the Deaf, and had a number of other civic interests.

JOHN J. RYAN, 68, who had been associated with Consolidated Edison Co. of New York Inc. for 50 years, died on Jan. 29. Most of Mr. Ryan's half century with ConEd was devoted to work in the Bronx where he began as a lamp boy and rose to assistant general superintendent. In 1943, after several years as general superintendent of the system's meter activities, he was elected president of the Edison Savings & Loan Assn., a position from which he retired three years ago.

J. CARL FISHER, manager of customer relations for Consolidated Gas Electric Light & Power Co. of Baltimore, died suddenly Jan. 10. Mr. Fisher joined the company in 1919. He was an active member of the Maryland Utilities Assn. and served as its treasurer for seven years.

L. G. WASKOM, former industrial engineer for Lone Star Gas Co.'s Dallas division, who retired in 1947, died Jan. 11. The 67-year-old Dallasite had been in the coal business before joining Lone Star in 1928, and he had also been associated with an Arizona firm as mining engineer.

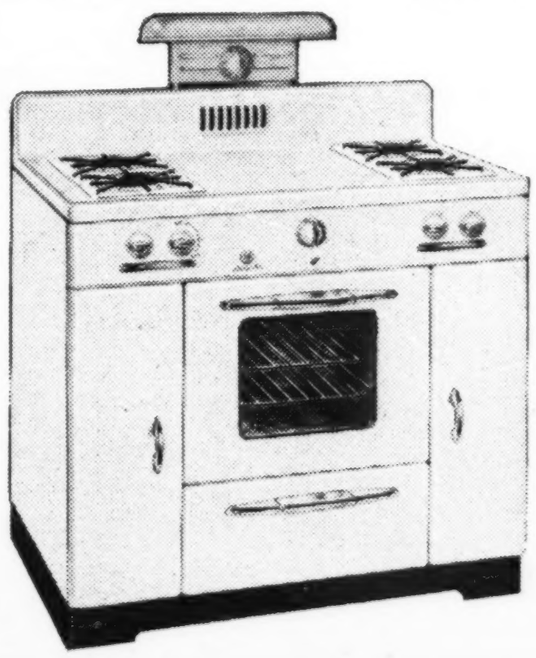


Chaplin Fulton Manufacturing Co. of Pittsburgh is now in its new home, pictured here, on Neville Island, nine miles down the Ohio river from Pittsburgh. Production at the plant began rolling Feb. 1. A hefty boost in production over that accomplished at the old Penn avenue plant is predicted for the new site, where 35,000 sq ft of floor space will house the latest type equipment for making gas regulators.

KING SIZE VOLUME

from the QUEEN SIZE OVEN

7500 series—4 models



Something every woman can understand and appreciate—an oven with 23% more baking space! Room for a 30-pound turkey—or a giant-size meal. A de luxe range without a de luxe price—actually selling below other ranges with standard-size ovens. A wide variety of models to enable you to offer the Queen-Size Oven to fit any budget. A sure way to trade up every customer—a sure way to offer greater customer satisfaction. You can't sell better cooking performance at any price! Nationally advertised in the Ladies' Home Journal and Better Homes and Gardens. Impressive dealer help material. Write for details, or ask our representative.

No matter what you pay, you can't buy better cooking performance!

Established 1879

HARDWICK

GAS RANGES

HARDWICK STOVE COMPANY

Cleveland, Tenn.

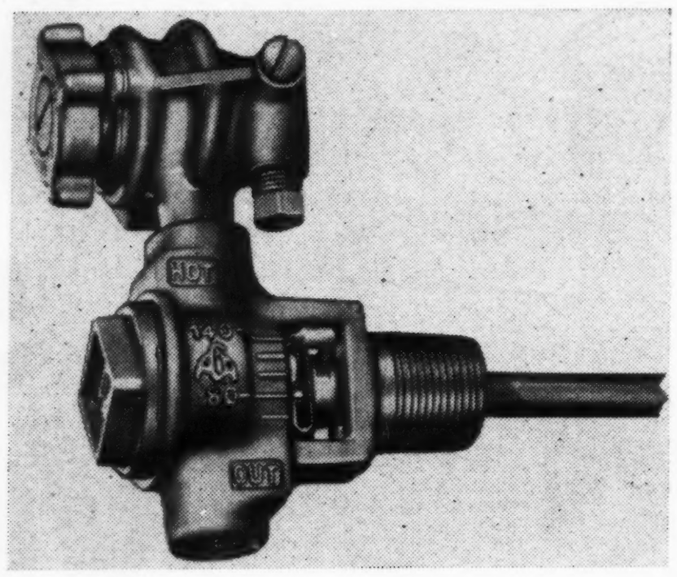
NEW PRODUCTS

Thermostat

UTILITY CONTROL CO., 832 E. 108th St., Los Angeles 2, Calif.

MODEL: UC-1 water heater thermostat.

DESCRIPTION: This thermostat employs the snap acting rod and tube principles. The thermostat and the V-1 valve are precision built and together incorporate only 18 parts. All parts are accessible for servicing without removing the thermostat from the water heater. Certified by AGA, each unit is tested at the factory and fully guaranteed. It is available in tube lengths of 4⅝, 6½, and 8½ in.



NEW! Peerless

CIRCULATORS — RADIANT HEATERS
UNIT HEATERS — FAN CIRCULATORS
A.G.A. APPROVED FOR ALL GASES

NEW! 1950 MODELS NEW! SMOOTH FINISHES

NEW! eye appealing smart designs
NEW! quiet forced air circulation
NEW! positive automatic controls
NEW! seam welded gas tight heating sections
NEW! striking finishes — longer life construction

Styled to Sell — Built to Satisfy — Made to Last

Get ready NOW for 1950's best selling high profit line.
New literature available soon . . . write for yours today.

Peerless

PEERLESS MANUFACTURING CORPORATION, LOUISVILLE 10, KY.

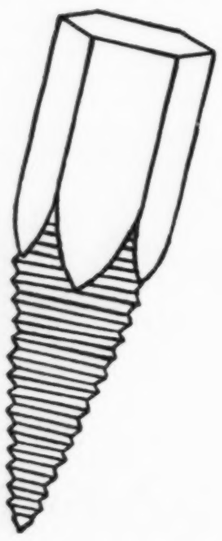
ADAMS PIPE LINE PLUGS

For welding leaks in large and high pressure gas lines

Made of case-hardened steel, ADAMS PLUGS thread themselves into pipe. Screw into hole and weld around. Write for literature.

STAUFFER MFG. CO.

8424 Otis St., South Gate, Calif.

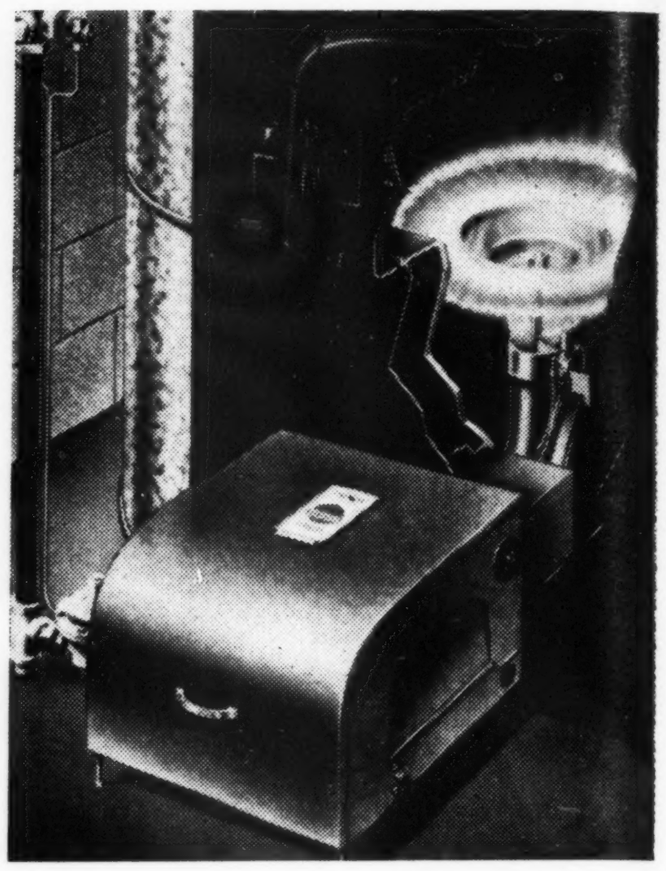


Conversion Burner

AMERICAN RADIATOR & STANDARD SANITARY CORP., Pittsburgh, Pa.

MODEL: Stanflame.

DESCRIPTION: This unit burns manufactured, natural, mixed, or LP-Gas up to 1400 Btus efficiently. It can be adapted to round or square combustion chambers and can be adjusted both horizontally and vertically. Dimensions of the control housing are 11⅝

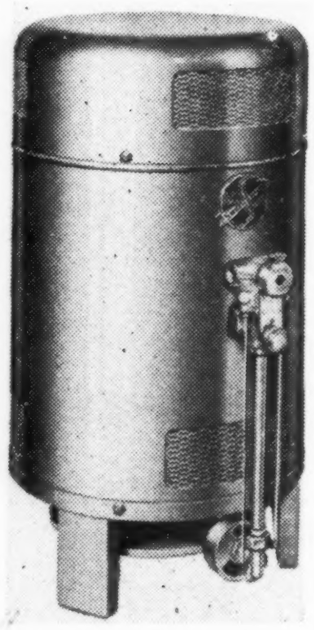


x 14 x 8⅝ in. The stainless steel flame spreader is 8 in. in diameter for the smaller burner and 10 in. for the larger.

AGA ratings for the burner range from a minimum of 60,000 to a maximum of 335,000 Btu input per hour, depending upon the size of the burner and the type of gas used.

The unit is equipped with a manual shutoff valve and features pilot ignition by means of a runner pilot igniter. The specially designed manual shutoff valve permits runner pilot ignition only when the main gas supply is in the "off" position.

Water Heater



A. O. SMITH CORP., Toledo, Ohio.

MODEL: Burkay 180.

APPLICATION: To provide sterilizing water to small restaurants at low cost.

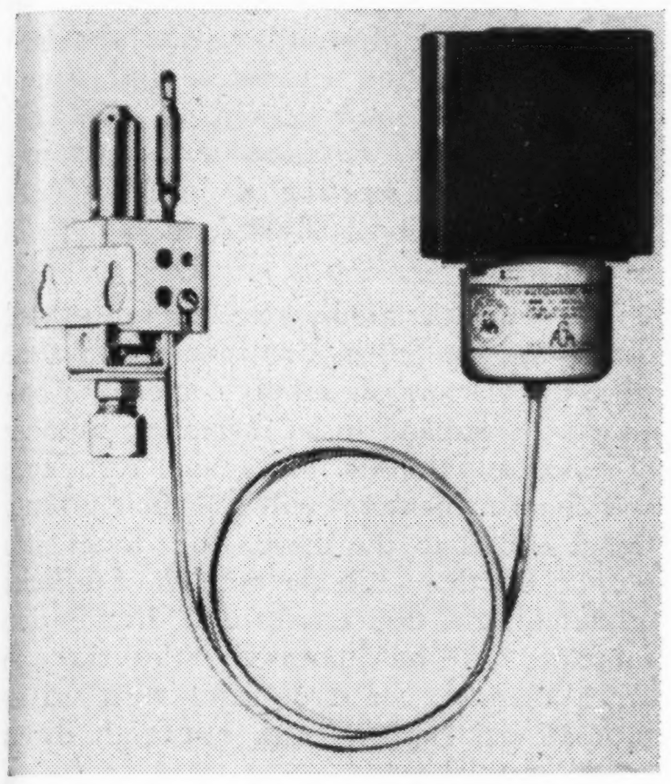
DESCRIPTION: This heater has an input capacity of 40,000 Btu/hr and stores 4½ gal. of 180° sanitizing water for rinsing. It normally takes warm water from the establishment's regular source of warm water. Outer dimensions are 30 in. in height and 16 in. in diameter, permitting installation under contours or in other confined areas. Relatively little piping is necessary and the 4½-gal. storage tank is self-contained within the heater.

Automatic Pilot

PERFEX CORP., 500 W. Oklahoma Ave., Milwaukee 7, Wis.

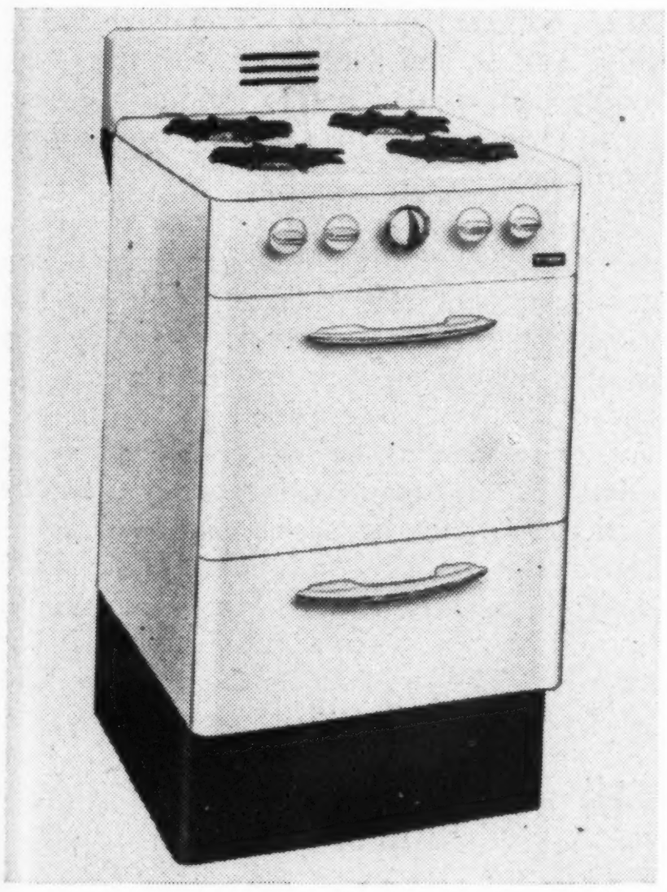
MODEL: Series 1001 non-flash automatic gas pilot.

DESCRIPTION: This new unit employs an electric contact switch at a remote location from the liquid-filled bulb. Features pointed out by the manufacturer are the non-flash



design, engineered so that gas cannot burn at the orifice, and the large primary air port which enables the primary air to move at a low velocity so that no dirt or foreign matter is drawn into the pilot.

The orifice is held in place by a simple clip, and it cannot freeze in place. No air adjustment is required when switching from one gas to another. The pilot is available with a variety of mounting brackets and burner tips which make it applicable to all types of burners.



THIS 21-IN. apartment size range is one of the featured models in the 1950 Premier Stove Co. (Belleville, Ill.) line. Others are a 38-in. range with divided or cluster top and a space-saving 30-in. model with divided top. All are AGA approved for natural, manufactured, or LP-Gas and the line has one-piece, chrome-plated cast iron burners, roomy ovens, and four-burner cooking tops.

NEW GAS White "WATER HOTTER"

Automatic Water Heater for L-P, Natural or Manufactured Gas

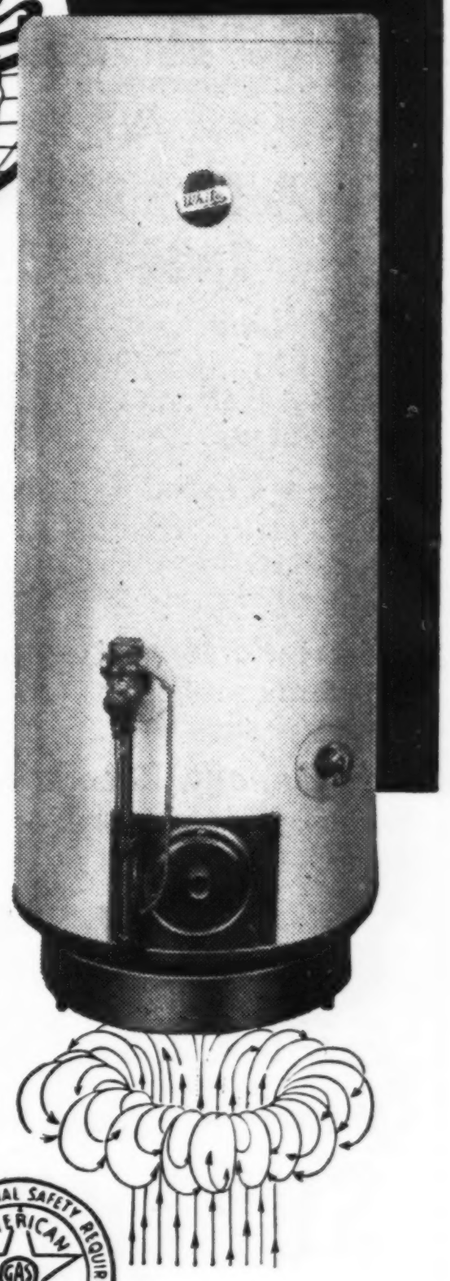
SO EASY TO SELL!

NEW!

SINGLE PORT "FILM OF FLAME" BURNER

No small ports to clog and cause improper combustion, and servicing! Built on the White "Water-Hotter" principle for best use of fuel, and quick, convincing sales demonstration!

Everybody understands and wants the new White "Film of Flame" burner. Thick Fiberglas insulation . . . White Uni-weld Zinc-inized inner tank . . . Robertshaw-Grayson controls . . . plus 13 other betterments . . . the most beautiful heater anywhere! Get the White Proved-Profit story from your White Distributor or directly from White!



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WHITE PRODUCTS CORPORATION

Water Heating Specialists Since 1930

MIDDLEVILLE, MICHIGAN

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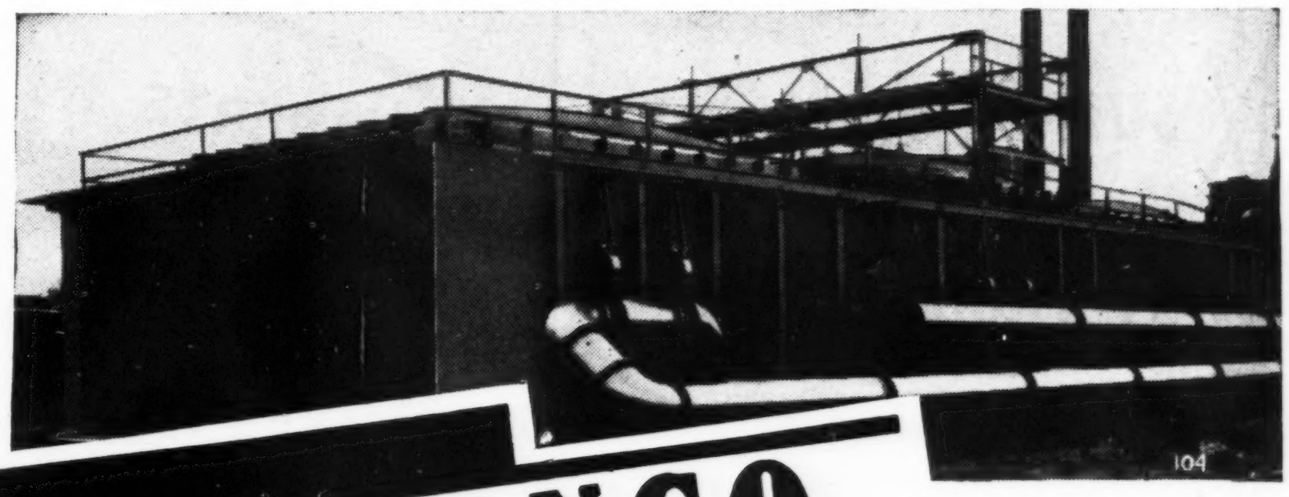


STAMANCO

GAS PURIFIERS

STAMANCO Purifier Boxes are designed to your specific operating and service conditions -- thus assuring utmost efficiency and economy. Made in any style or capacity. We design, build, and install STAMANCO Purifier Boxes complete with all trays, piping, valves, gantry cranes, and equipment for the economical handling of oxide materials. Let us figure on your requirements.

The STACEY MANUFACTURING Co.

SINCE 1851

CINCINNATI 16, OHIO

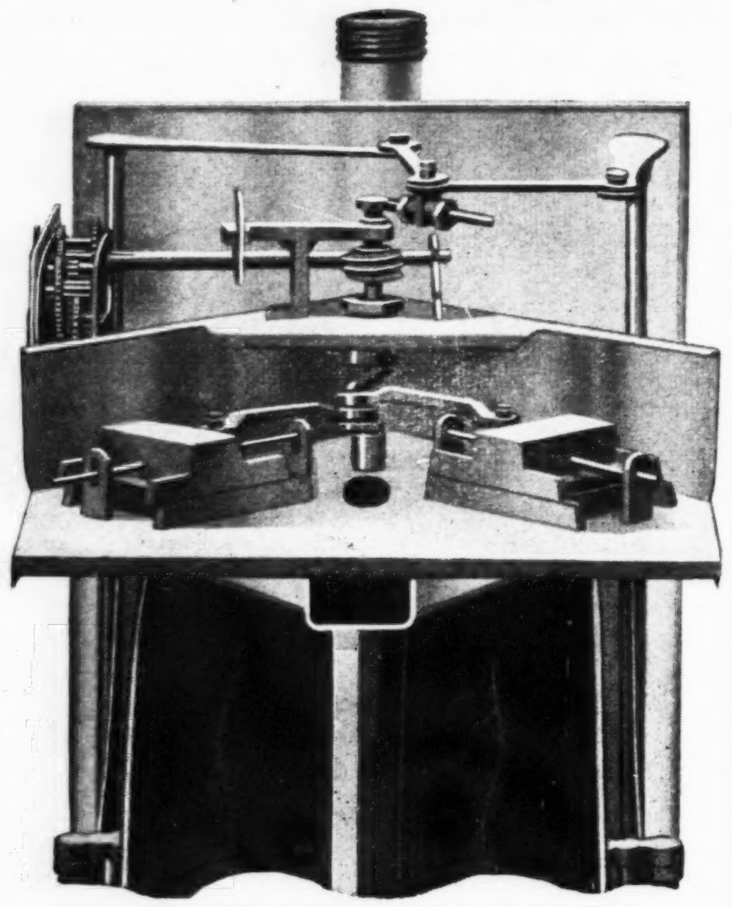
GAS HOLDERS • HI-PRESSURE TANKS • PURIFIER BOXES

ENGINEERS • FABRICATORS • CONSTRUCTORS

An Independent Organization Not Affiliated With Any Other Builders of Gas Holders

SUPERIOR GAS METERS

ALL THAT THE NAME IMPLIES



- ***Full Line***
From 150 to 7,500 cu. ft. per hour capacity. For domestic, commercial and industrial use.
- ***Time Tested Quality***
One piece, ribbed steel carriage. Heavy, non-fluttering valves. Flanged cases. Many other proved features.
- ***Fast Parts Service***
Interchangeable parts for "Superior" and other makes.
- ***Nationally Recognized***
Increasingly specified by America's leading gas utilities.

CATALOG UPON REQUEST

SPECIALISTS IN TIN STEEL METERS

Meters • Meter Repairs • Diaphragms • Parts • Accessories

SUPERIOR METER CO., INC.

167 41st Street, Brooklyn 32, N. Y.

SULFUR-FREE GAS

AT LOWEST COST

WITH IRON SPONGE

Iron Sponge is a concentrated purification material that operates with high efficiency at high or low pressures, has excellent capacity and activity, gives long service between foulings and is simply and quickly regenerated. This is why Iron Sponge has been preferred for H_2S removal for over 75 years.

CONNELLY *Inc.*

3154 S. California Ave., Chicago 8, Ill.
Elizabeth, N. J. • Los Angeles, Calif.

EXPERTS IN GAS CHANGE-OVER SERVICE

LET our experienced gas conversion specialists save you time, cost and trouble on every gas change-over project—for natural, manufactured or LP-gas. Our comprehensive service includes:

- ★ Physical and Sales Potential Surveys
- ★ Engineering and Construction Changes
- ★ Appliance and Equipment Adjustments
- ★ Public Relations Planning

AMERICAN GAS CONVERSIONS, INC.

AGC

ROCKEFELLER CENTER
630 FIFTH AVENUE
NEW YORK 20, N. Y.

A SUBSIDIARY OF

PACIFIC GAS CORPORATION

SALES SLANTS

Prizes, All-Year Promotion to Spur Servel Salesmen in 1950

A year-round sales promotion campaign, wider distribution for its all-year air conditioner and water heater through greater cooperation with department stores and utilities, and revival of awards to star salesmen will help Servel Inc., Evansville, Ind., attain its goal of "50% more sales in '50." W. Paul Jones, president, outlined the company's 1950 plans at a meeting of the New York Society of Security Analysts held Jan. 30 in New York.

"More utilities are interested in selling and promoting the Servel line than at any time since the war, as gas supply comes into balance with demand in an increasing number of communities," Mr. Jones said. Appliance and department stores will add their promotional efforts to the drive. Mr. Jones also pointed out that while the number of utilities undertaking a direct sales and distribution function will be increased, sales through other channels, in most cases with utility promotional support, now outweigh direct sales by utilities.

"Our potential in the refrigeration business alone is terrific," Mr. Jones said. He stated that 3,266,000 gas refrigerators have been sold since 1926, but there are 22,900,000 gas users in the country. On the other hand, the electric industry has 29,500,000 refrigerators in use, compared with a potential of 37,244,000 electricity users.

January, February, and March have been designated the sales "warm-up" period by Servel, using the 3-D Plan—display, demonstrate, and deliver. This will be followed by the Big Spring Drive during April, May, and June. The entire industry, prompted by AGA, will get behind the Servel drive during July, August, and September with the Clean Sweep Campaign. Then to wind up the year, a Fall Drive will be held during the last three months.

Servel is reviving the practice of giving special recognition to all retail salesmen who qualify as "Servel star salesmen." Men and women who achieve better-than-average sales records on gas refrigerators during any calendar year will be entitled to this honor. For 25 retail sales, or 100 multiple housing sales, the salesman will receive a leather wallet especially designed to hold his refrigerator sales record. For 50 retail sales, or 250 multiple housing sales, a silver emblem, lapel button or pin with a ruby inset will be awarded. The emblem, button or pin will be gold with a diamond inset when sales climb to 100 (500 multiple housing), and for each subsequent year in which 50 retail sales are made, a ruby will be added; for 100 retail sales in any subsequent year, a diamond will be added.

This competition is open to retail salesmen employed on a salary or commission, or both, by a utility or dealer authorized to sell Servel refrigerators.

PORTFOLIOS OUTLINING the April, May, and June "spring style show" promotion on gas ranges have been mailed to sales executives of gas utilities by AGA. Included

are suggestions for floor and window displays, local advertising, premiums, giveaways, and plan for a sales floor style show using models and the latest spring millinery and clothing. Each leading range manufacturer has designated a new model as his spring style show number. Tie-in advertising will appear in national magazines and local newspapers.

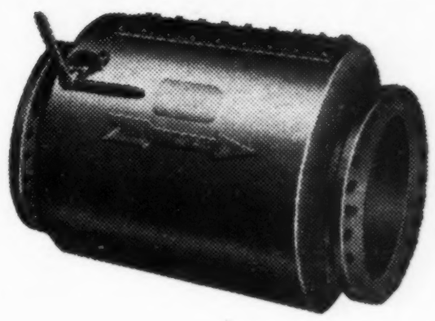
A CONTEST PLANNED to discover new ideas for gas incineration promotion, initiated by the AGA gas incineration committee and sponsored by eight members of GAMA's incineration division, closed Feb. 28. The sponsors contributed $500 which will be presented in five cash awards to utility executives or employees who submitted the best ideas for increasing gas incinerator sales. First prize is $200, second and third are $100 each, and fourth and fifth are $50 each.

TWENTY-NINE UTILITY home service department members will receive national publicity and $500 in cash awards at the close of the AGA home service demonstration contest April 1. Winners will be selected for submitting the best scripts for demonstrations of automatic gas ranges built to CP standards. Prizes are being contributed by the GAMA CP manufacturers group.

WESTERN STOVE CO., Los Angeles range manufacturing firm which has confined its operations primarily to the west coast for the past 30 years, has announced plans to invade eastern markets with its Western Holly line. To spearhead the program Lloyd C. Ginn, former head of advertising and promotion for American Stove Co., has been named general sales manager.

EXPANDING ITS SALES work on the Pacific Coast, Anderson Stove Co., Newark, N. J., has appointed the Pioneer Appliance Co. of San Francisco as a distributor for its sealed heat gas ranges. The Anderson company is a subsidiary of Breeze Corporations Inc., Newark.

THE 4-IN. PIPE sample pictured above shows the effectiveness of Hill, Hubbell & Co.'s "Roto-Grit-Blast" process. One end of the pipe is left uncleaned; the other has traveled through a powerful blast of steel grits which cleans and etches the pipe. A desk-size sample may be obtained by writing to the company at 3091 Mayfield Rd., Cleveland, Ohio.



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DISC TYPE
CHECK VALVE

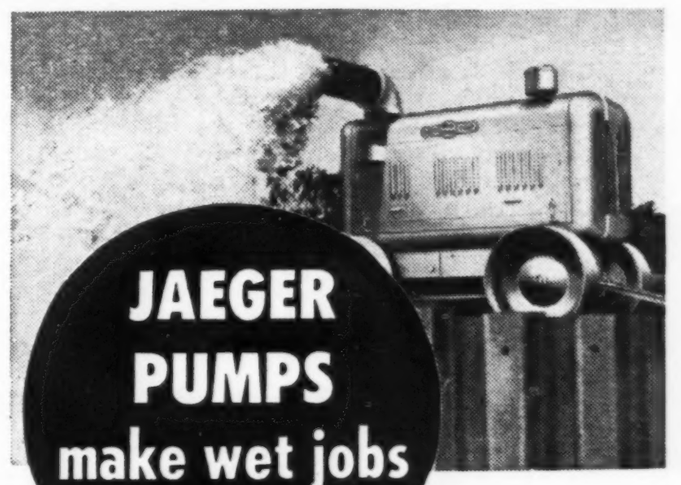
Flanged and
Fabricated in Steel

For *GAS* and *AIR*—
LOW and *HIGH PRESSURES*

Can be supplied for use with any pressures. Easily lubricated through grease fitting. Indicator shows position of disc. Can be counter balanced for vertical jobs. Dash pot can be installed to prevent chattering when passing high velocity gas or air.

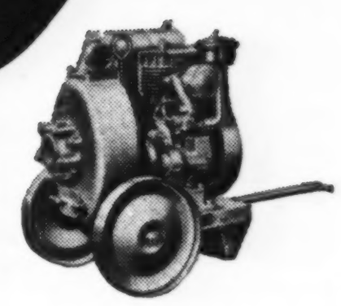
NORWALK VALVE CO.
South Norwalk, Conn.

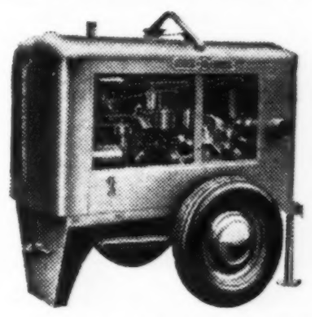
New 2" aluminum pump weighs 105 lbs., pumps 9000 gph . . . Gives high head performance for price of low head pump.



JAEGER PUMPS make wet jobs dry

Extra power and double priming action to dewater faster. Built to outlast cheaper pumps by thousands of hours.





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Columbus 16, Ohio

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LP-GAS SPECIALISTS—100% PLANTS—STAND-by—Enrichment—Peak Shaving. Twenty years experience. H. Emerson Thomas and Associates Inc., Westfield, New Jersey.

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FOR SALE
Packaged compressor

3¾ and 3¾ x 12 Ingersoll-Rand, Beaird type 4XVG-1 heavy duty, direct-connected 4 cycle, gas engine driven, single stage compressor, skid mounted. Excellent condition—operated only 2400 hours.

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Davenport, Iowa

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PIPE DETECTORS

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FIRST WITH SHIELDED LOOPS
FIRST WITH "SURE GRIP" HANDLE
FIRST WITH LIFETIME GUARANTEE

The new DETECTRON Model 505 locates, traces and centers pipes and cables with speed and accuracy. Small, compact, lightweight—with HEAVY DUTY PERFORMANCE.

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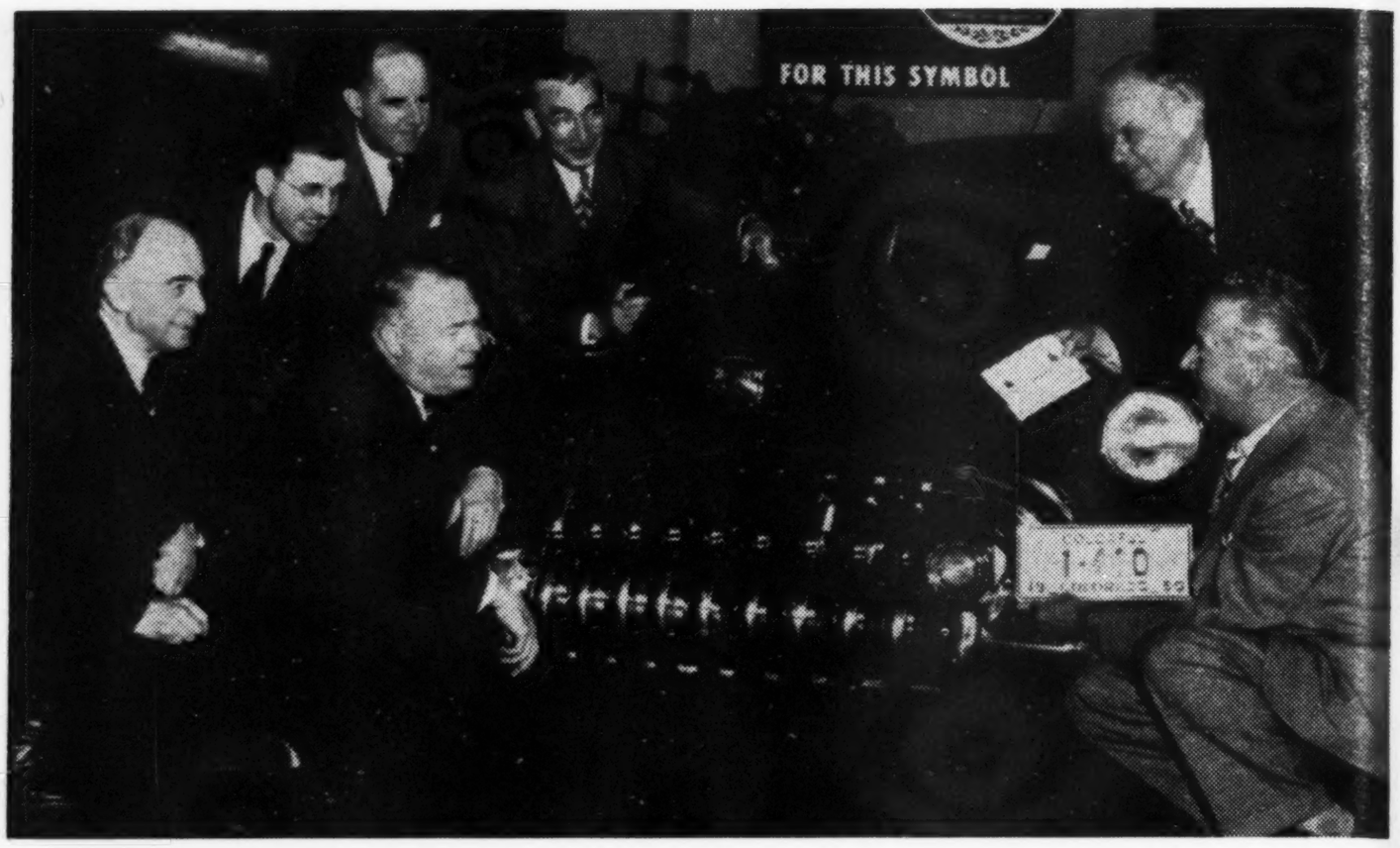


SUPER SALESMAN D. A. Bell (extreme right) is shown receiving the Buick which he earned as grand prize winner in GAMA's Court of Flame competition. Shown with Mr. Bell are representatives of Denver firms which cooperated in sponsoring the event. They are (left to right) Roy Munroe, superintendent, Public Service Co. of Colorado; M. R. Hogue, Bastian Morley Co.; C. W. Brown, Owens-Corning Fiberglas Corp.; G. B. Buck (kneeling), vice president of the Denver utility; J. J. Murray, Crane-O'Fallon Co.; and G. D. Beavers, Buick dealer.

COURT OF FLAME

GAMA NAMES WINNERS, TELLS 1950 PLANS

Prize winners in the 1949 Court of Flame contest were announced recently by GAMA, and plans were outlined for continuing the campaign in 1950 with a seven-month drive beginning March 1. This year's program will eliminate competition between salesmen, allowing each individual to earn awards for outstanding effort.

In the 1949 contest, entered by hundreds of gas company salesmen and 10,500 dealer-salesmen who rang up total sales of $1,350,000, D. A. Bell, president of the Bell Plumbing & Heating Co., Denver, was the grand national winner. Mr. Bell walked off with the first award in three of the four quarterly contests during the year (*GAS*, December 1949, p. 74), won a $1000 savings bond for the greatest number of sales of Court of Flame automatic gas water heaters in his region, another $1000 bond for selling the largest number of all types and sizes of water heaters in his region, and a Buick Super Sedan for leading the nation's dealer-salesmen in sales of top-quality Court of Flame heaters.

In the competition among gas company salesmen, Michael N. Barbour, Michigan Consolidated Gas Co., Detroit, won a Buick for leading all divisions in sales of Court of Flame water heaters. He was also top utility man for sales of all types and sizes of automatic gas water heaters, for which he was awarded a $1000 bond.

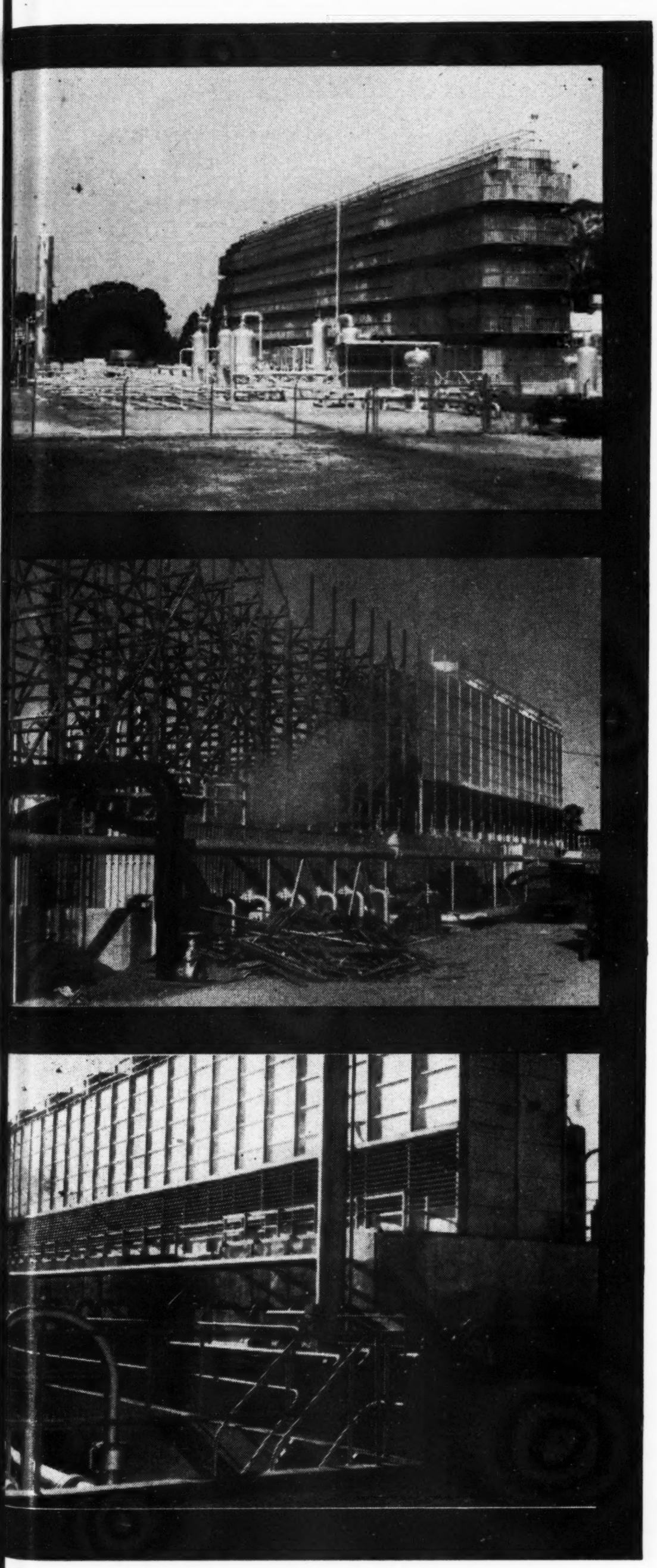
GAMA has published a complete list of winners and runners-up in each region and division of the contest.

Stanley C. Gorman, director of the 1950 campaign, announced that this year's theme will be "All Aboard," and such slogans as "Ride the Gas Line," "Clear Track Ahead for Sales in 1950," "There Are Sales Even at the Whistlestops," and "Court of Flame Express" will be featured in promotion. Sales promotion gadgets such as railroad whistles; railroad engineer jackets, hats, and scarfs with insignias of leading rail lines; window streamers and pennants are available for use with the drive.

AGA is sponsoring a tie-in advertising campaign, and GAMA is running trade press ads. Direct mail pieces have been sent to 94,000 dealers, jobbers, wholesalers, and utilities, and additional mailings will be distributed by GAMA and by individual manufacturers during the year. Thirty-two manufacturers are taking part in the campaign with local and national advertising and promotion.

Court of Flame tags similar to those used last year will be attached to water heaters, and prize points will be accumulated as follows: For top grade deluxe heaters, 50; intermediate heaters, 30; low-priced heaters, 10. A salesman must have 300 points before sending in his first tag. Upon receipt of the tags, GAMA will issue prize point certificates which can be used to claim prizes. Thus, a salesman may combine several certificates for a larger prize. Merchandise worth $180,000 and including silver sets, radios, television sets, sporting goods, etc., will be awarded.

Conversion of a Cooling Tower



from atmospheric to induced draft operation

By RAYMOND W. TODD

DURING the past summer Pacific Lighting Corp. has completed the reconstruction of a 29-bay atmospheric type cooling tower necessary to convert it to induced draft operation. This tower is part of the facilities installed at the Goleta gas storage field, located approximately eight miles north of Santa Barbara, Calif.

Several reasons prompted consideration of revisions in the atmospheric cooling facilities which existed at the Goleta plant:

First, the unsightly appearance of the existing tower detracted from the overall appearance of the plant facilities.

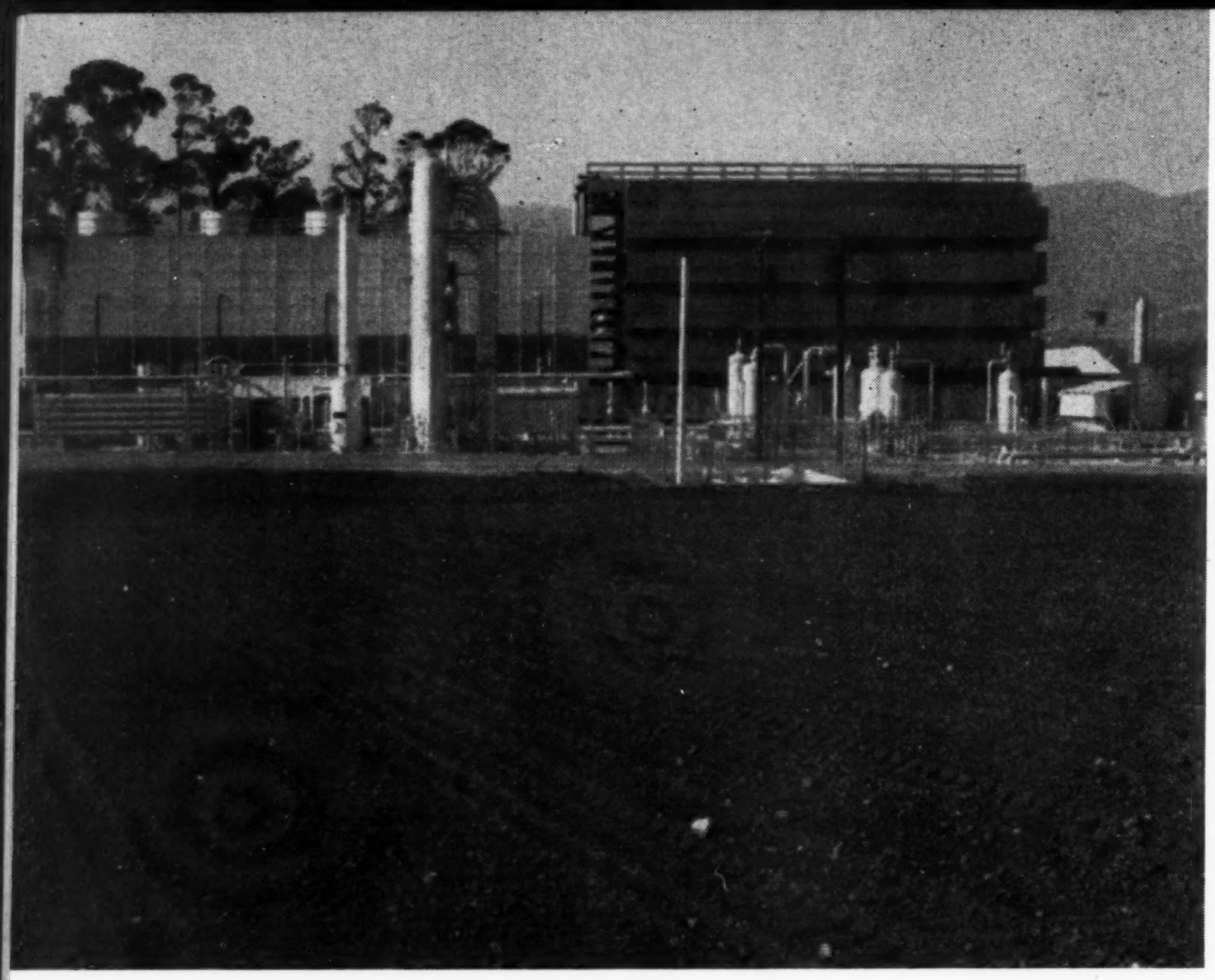
Second, the cost of maintenance of the surrounding plant facilities was high because of water spray from the cooling tower. With the tower located on the windward side of the main compressor building, trench piping and other equipment around the plant were continually exposed to the cooling tower spray.

Third, a large amount of water was wasted from the atmospheric tower in the form of spray and wind loss. A check of our plant operating data indicated that cooling tower spray and wind loss at times amounted to as much as 25% of the total plant water consumption. Wind loss from the tower with only a moderate wind has amounted to as much as 30,000 gal of water per day. In view of the difficulty in developing water in this area, such a large loss of water was of major importance and, therefore, was one of the primary reasons which prompted us to consider the revision of the cooling facilities.

Fourth, the cooling capacity of the atmospheric tower was inadequate under certain atmospheric conditions.

The cooling facilities at Goleta are a part of the compressor and dehydration plants which were installed in conjunction with the injection and withdrawal of natural gas in underground storage. The tower provides cooling for several

PICTURES AT LEFT, top to bottom, show stages of construction of new cooling tower facilities. At top, the original atmospheric cooling tower; center, half of tower has been converted to induced draft operation; bottom, the completed induced draft cooling tower.



HALF OF TOWER still operates as atmospheric cooling tower in picture above, while other half has been converted to induced draft operation.

different operations consisting of:

1. Cooling of gas which is withdrawn during the winter time.

2. Cooling of compressor engine jacket water while gas is being injected for storage during the summer.

3. Cooling of diethylene-glycol in conjunction with the dehydration of gas during periods of withdrawal.

The original cooling tower installed at Goleta storage was constructed in 1939 and consisted of six bays. As the Goleta storage project developed and facilities were extended, this original tower was added to until, in 1948, it consisted of 29 bays, and was 179 ft in length and 43 ft in height, including the coil shed. The cooling tower itself was 12 ft in width and was installed over a coil shed which housed the cooling coils for the various services.

In endeavoring to arrive at the most economical means of solving the problems presented by the atmospheric cooling tower at Goleta, we gave consideration to these types of installations:

Radiator-type cooling. This type is very desirable inasmuch as it entirely eliminates the use of water, the facilities consisting of fans blowing air across extended fin coils. A disadvantage is that it generally is not practical for cooling services where temperatures lower than 15° above the ambient air temperature are necessary. The jacket water cooling at Goleta met these requirements. However, cooling of gas and glycol during withdrawal periods did not come within this temperature range, and, therefore, some other type of supplementary cooling would have to be provided. Inasmuch as the atmospheric tower was unsatisfactory, it did not seem advisable to maintain a portion of it for the lower cooling requirements.

The only alternative would be to install an induced draft tower in the location of a portion of the present atmospheric tower and utilize a part of the present cooling tower basin. This would eliminate the necessity of relocating and repiping the gas and glycol cooling coils. Such an installation, it was estimated, would cost $60,000. The radiator-type cooling equipment for jacket water would cost, completely installed, along with necessary piping, $45,000, which would make a total cost of $105,000 for these cooling facilities.

A new induced-draft cooling tower for all cooling requirements. Our operating conditions at Goleta made it impossible to make such an installation in the location of the present atmospheric tower. An induced draft tower to handle all cooling requirements would consist of three (24 ft x 24 ft) cells and would cost, completely installed, with concrete basin, approximately $60,000. The installation of the jacket water and gas cooling coils in a new induced draft tower along with necessary piping would cost $36,000, for a total cost of approximately $96,000.

Alteration Work

Alteration of the present cooling tower to convert it to induced draft operation. Inasmuch as the structural portion of the existing atmospheric tower and the concrete basin were in good condition, it was felt that consideration should be given to this method. The above figures show that the installation and repiping of the cooling coils in a new induced draft tower would amount to more than one-third the total cost, and, therefore, if this work could be eliminated, a major saving could be effected.

In view of this apparent saving, preliminary estimates were made covering the costs of converting the atmospheric tower to induced draft operation. These estimates indicated that the tower could be reconstructed for approximately $55,000. In view of the differential in cost between this method of solving the cooling problem and the other possible solutions, it was decided to proceed with the detail design of the reconstruction of the atmospheric tower.

Requirements

In order to be assured that the conversion of the tower would solve the various problems with which we were confronted, we set up the following requirements:

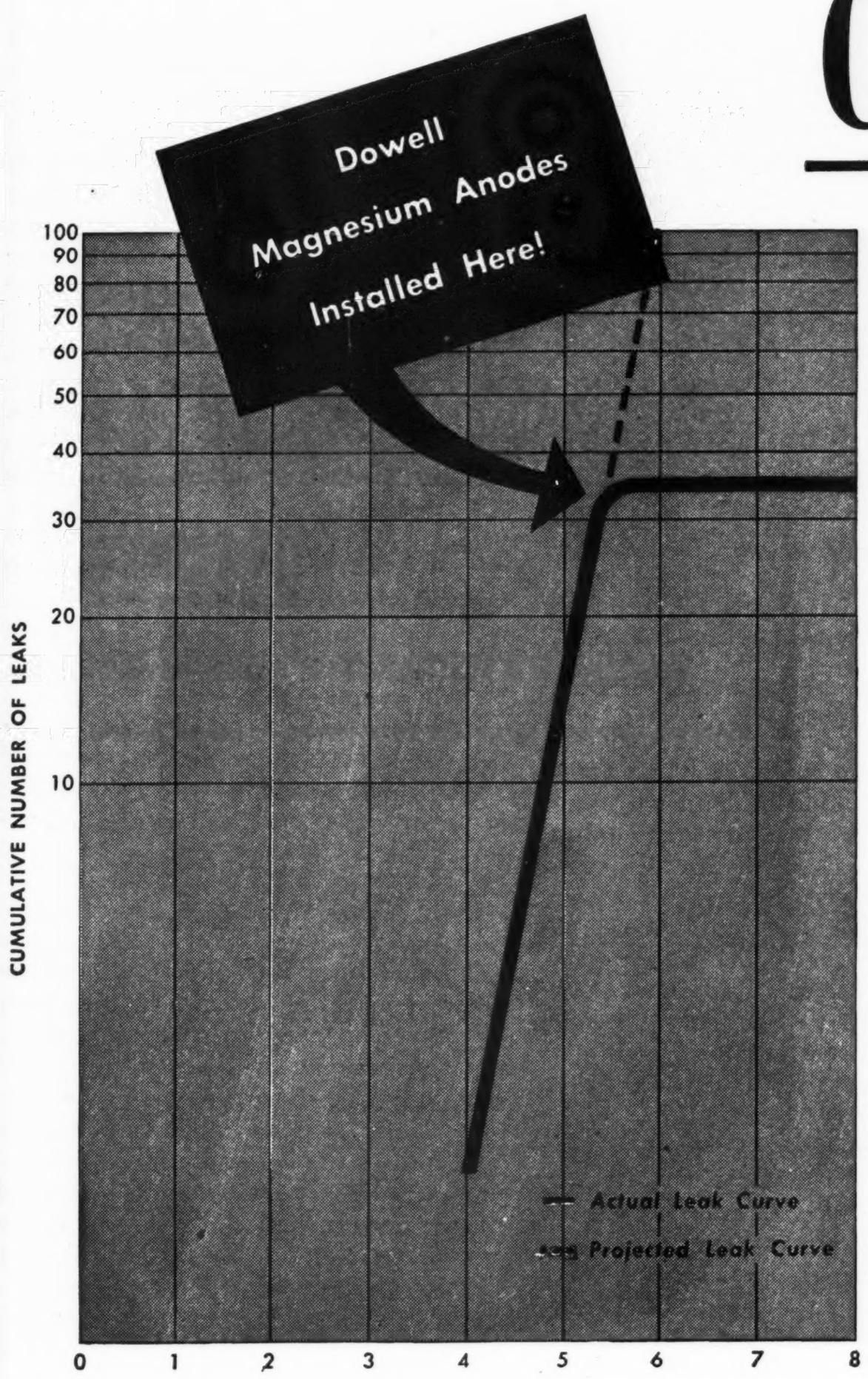
1. The wall of the tower was to be of double construction with the inside surface of 1-in. T&G Redwood and the outside surface of ⅜-in. waterproof plywood, these two surfaces to be separated by air space 1¾ in. wide. The air space was to be continuous and open at both top and bottom so as to prevent any carry-over of moisture from the inside wall to the outside wall. Recent experience in maintaining the exterior surface of induced draft cooling towers had shown that a plywood surface stood up better and presented a better appearance than a surface of 1-in. T&G.

2. All joints on the wall panels for the cooling tower structure which extended to the outside were to be sealed by mastic in order to eliminate any possible leakage of water.

Mr. Todd is chief engineer, Pacific Lighting Corp., Los Angeles. This paper was originally presented at the December meeting of the California Natural Gasoline Assn.

Here's How . . .

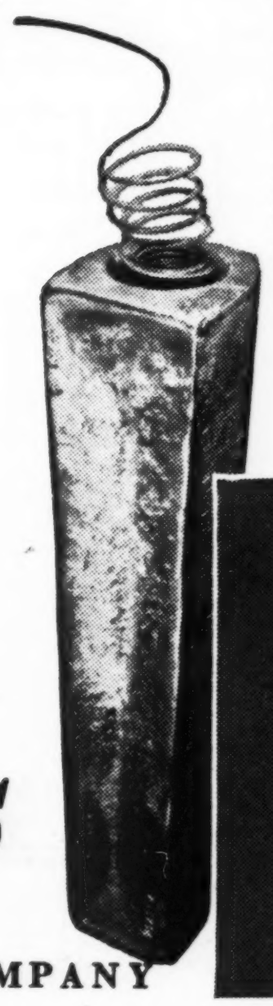
PIPELINE MAINTENANCE COSTS CAN BE CUT!



One way to lower pipeline maintenance costs is to reduce the number of leaks. The graph at left shows how a Gulf Coast city cut leaks in a 27 block, 2″ galvanized piping system. The system was installed in 1940 and 1941. By April, 1946, leaks were appearing at an accelerated rate. *Then, magnesium anodes were installed!* Result: 2 leaks in the 30 days following installation and *no new leaks for the balance of 1946, 1947 and 1948!*

Cost-cutting protection such as this is being achieved with Dowell magnesium anodes. When corrosion of buried metal structures is a problem . . . for example, on oil and gas pipelines or municipal distribution systems . . . Dowell anodes may afford practical, economical corrosion control. The degree of protection will depend on soil conditions and the number of anodes used. Dowell magnesium anodes require no external power and maintenance is at a minimum.

Dowell anodes are carefully alloyed to specifications designed for peak efficiency and long life. The development of these anodes was pioneered by The Dow Chemical Company. Now, Dowell . . . a Dow Subsidiary . . . is carrying on the marketing, research and further development of magnesium anodes. Dowell can give you the technical advice to make your anode installation effective and economical. Write to Dowell for a new book containing detailed information on the uses and installation of Dowell Magnesium Anodes.



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FREE SHOWING! Now available—a new 18-minute sound slide film illustrating the possibilities of Dowell magnesium anodes for corrosion control. A Dowell representative will gladly arrange a special showing at your plant, office or organization meeting. Call or write Dowell.

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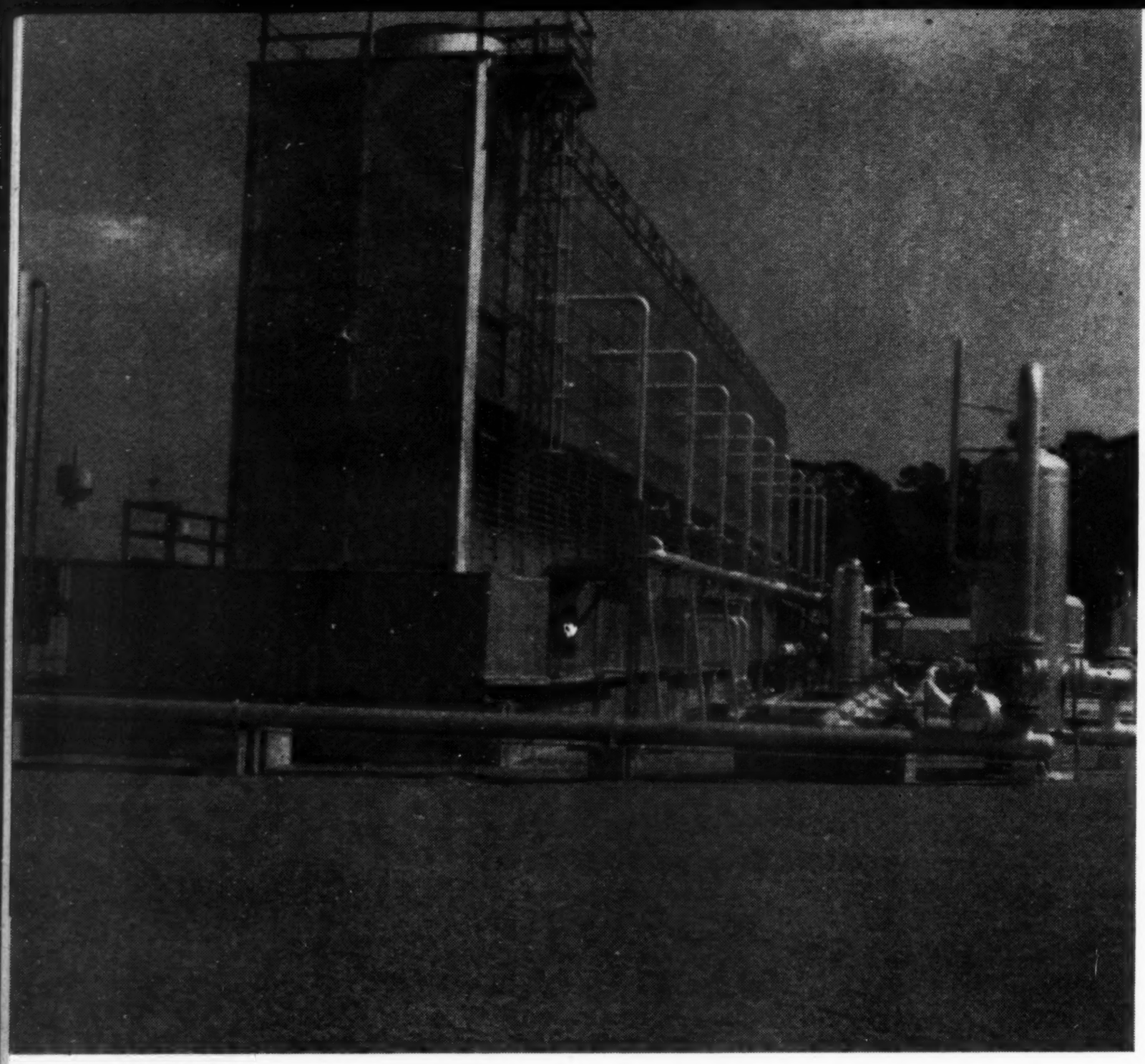
MAGNESIUM ANODES

GALVO-PAK • GALVO-LINE

SUBSIDIARY OF THE DOW CHEMICAL COMPANY

Look to **DOWELL**

MAGNESIUM ANODES FOR CORROSION CONTROL



CLOSEUP VIEW of the completed cooling tower, entirely converted to induced draft.

3. In order to assure ourselves that the construction of the tower would be waterproof in all respects, we specified that the exterior of the tower should be free from any leakage for a period of one year and in the event leaks did occur, the contractor would make the necessary alterations to repair such leaks at his own expense.

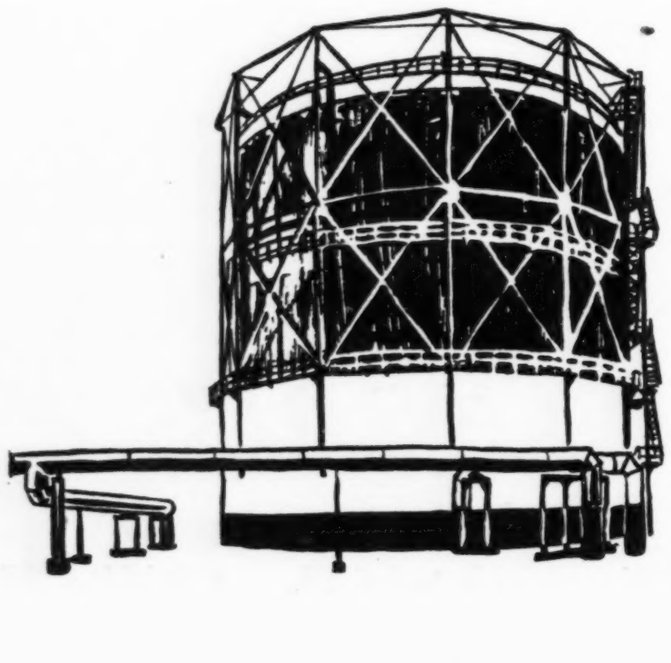
4. The performance of the cooling tower was to be guaranteed to cool 3000 gal of water per minute from 88° F to 73° F with 66° F wet bulb temperature. These were the same cooling specifications for which the atmospheric tower was designed with the exception that they were based on a 3-mph wind through the tower. There was to be incorporated in the guarantee a set of performance curves which would set forth the guaranteed performance for all wet bulb temperatures within a specified range.

Height Reduced

In order that the tower structure carry the added loads imposed on it by the fans, their operating equipment, and the additional wind load resulting from the side of the tower being covered solid, it was necessary to reduce the overall height of the original tower by 8 ft and improve the joint efficiency in the diagonal bracing. This was accomplished by installing brass gusset plates between the diagonal bracing and the vertical members in the cooling tower.

In view of the 12-ft width of the original cooling tower, the maximum size fan which could be installed was 8 ft in diameter. In order that the cooling conditions be met, it was necessary to install nine fans on top of the tower, each one drawing air through a separate cell. The two end cells on the tower were 12 ft x 24 ft while the remaining seven cells were 12 ft x 18 ft. The end cells, being larger, required the drawing of more air; therefore, the fans on these cells were driven by a 15-hp motor whereas the remaining seven fans were driven by 7½-hp motors.

The cooling tower fan motors were to be controlled from a central panel board located in the auxiliary room adjoining the main compressor engine building. This panel board, in addition to starting and stopping switches for each individual motor, was to be equipped with lights which indicated which fans on the tower were in operation. It was also necessary to provide for disconnect switches at the individual motors to prevent their being started by the remote control switch during the time the fan mechanism was being worked on.



Removing Fill

Inasmuch as the fill in the old atmospheric cooling tower was designed for a horizontal passage of air through the tower instead of the vertical movement of air which occurs in an induced draft tower, it was necessary to remove all of the fill from the tower and replace it with a new fill which was designed for induced draft operation. It is generally agreed that it would have been impossible to utilize the old fill material in converting the tower to induced draft.

Following the working out of the details in connection with converting the tower, the tower suppliers furnished us with a proposal whereby they agreed to perform all work in connection with the conversion of the tower to induced draft operation for a fixed price with the exception of the cost of removing the old exterior surface of the original tower and the removal of the fill in the tower. This work was performed on a cost-plus basis in view of the definite amount of work which would be involved in the removal of the exterior surface and the tower fill.

Half At A Time

Inasmuch as we could not take the entire cooling tower out of operation for a period long enough to perform the conversion work, we specified that only one-half the tower could be converted at a time and that work on the first half of the tower would have to be completed before work could be started on the second half. Conversion, which was started about May 1, required a period of approximately two months. Following completion of the tower, performance tests were made on the tower to determine if it met the guaranteed conditions. These tests indicated that the cooling tower, when operating within the range of the performance curves, gave approximately ½° closer approach to the wet bulb than was required under the guarantee.

Final costs of all work performed in connection with the conversion of the tower to induced draft operation show that the complete job, including all electrical work and painting the completed tower, amounted to $62,275.

The cost of the electrical installation, including motor controlling equipment, wiring, etc. was approximately $4000, which, if omitted from the above figure, would leave a net cost for the actual conversion of the tower of $58,275.

NEW...

and 11 ways better!

Worthington Achieves a Triumph in Modern Angle Gas Engine Compressor Design with the Uniflo TYPE UTC-16's...Thru-Scavenging, 2-Cycle Engines of 800—2,000 HP that Hit New Highs in Efficiency AND Economy...Outstanding on Pipeline Duty

1. UNIFLO SCAVENGING — A RADICAL IMPROVEMENT OVER CONVENTIONAL LOOP SCAVENGING.

AIR PORTS AROUND ENTIRE CIRCUMFERENCE OF CYLINDER. Port area more than double.

EXHAUST THRU CAM OPERATED TIMED VALVES IN CYLINDER HEAD. Area 50% greater.

STRAIGHT LINE AIR FLOW thoroughly cleanses and cools entire cylinder.

SUPERCHARGING. Timed valves retain greater weight of pure air for perfect combustion.

THESE IMPROVEMENTS result in higher mean effective pressures without increased temperatures.

2. EN BLOC FRAME — permits use of removable cylinder liners.

3. DOUBLE AIR MANIFOLDS — doubles volume of air and steadiness of flow.

4. RENEWABLE CYLINDER LINERS — mean longer life and low-cost maintenance.

5. PISTON — completely symmetrical outer piston wall — wrist-pin supported in separate carrier.

6. CYLINDER HEAD — Worthington cone-type ... two large exhaust valves — streamlined passages.

7. GEAR DRIVEN CAMSHAFT — assures positive drive and perfect timing.

8. IMPROVED COOLING — jacket water space cast integral with liners, eliminating internal water seals.

9. LUBRICATING SYSTEM — Worthington cast-in manifolds, positive pressure lubrication to every running part.

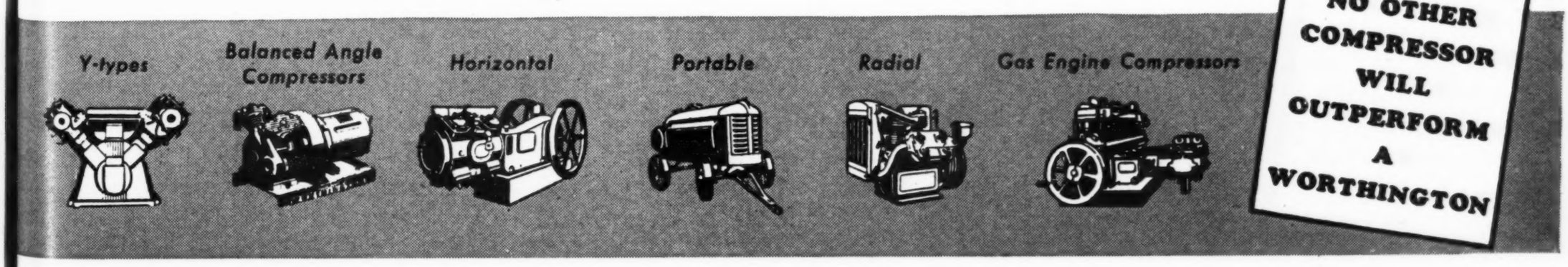
10. ACCESSIBILITY — inherent in straight-line engine design, increased by large access doors on both sides of the engine frame.

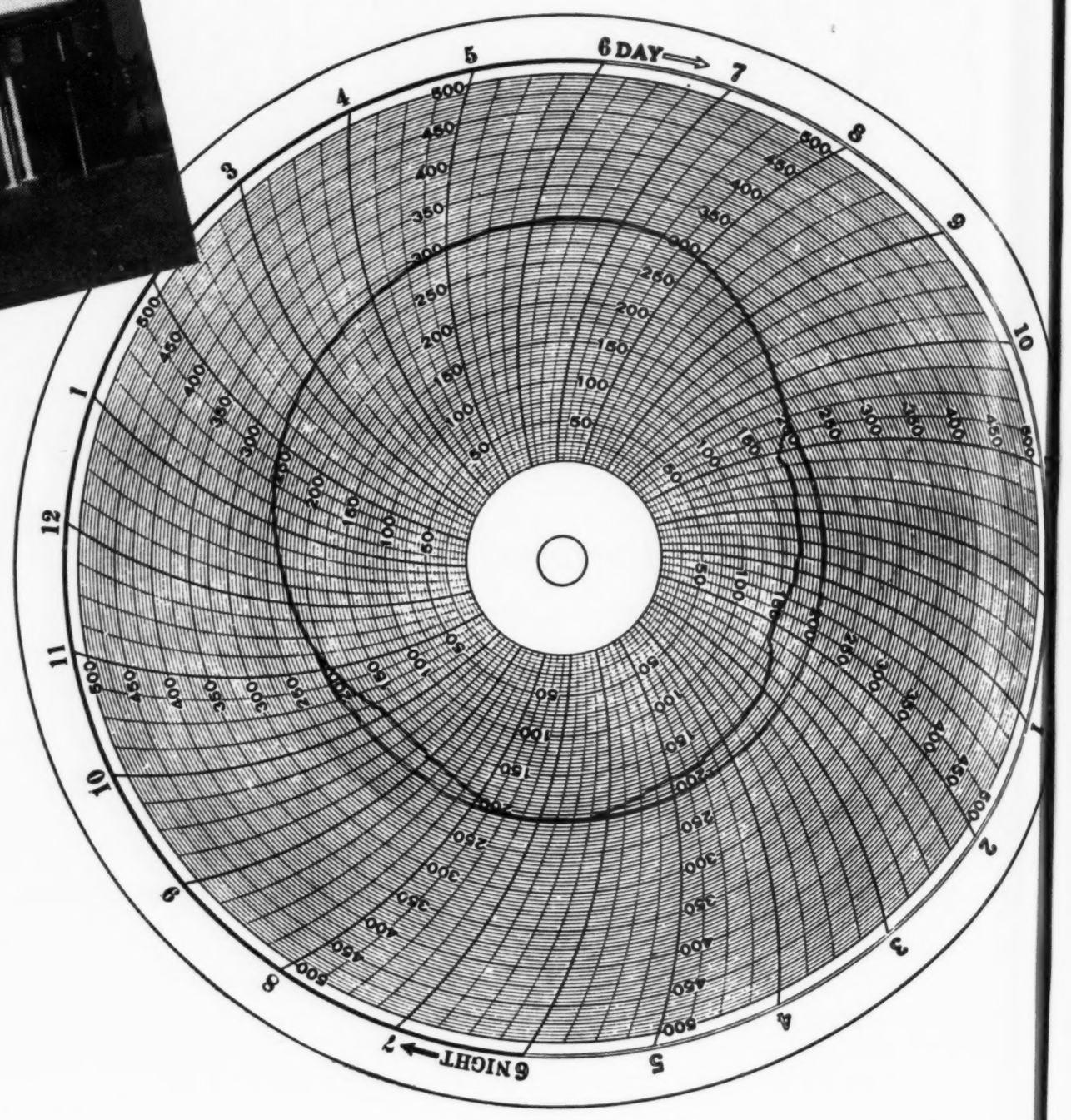
11. WORTHINGTON FEATHER* VALVES: lightest, tightest, quietest ever made used in both compressor and scavenging cylinders.

"CUSTOM-BUILT" FOR ITS JOB

In addition to Worthington's experience covering half a century of building compressors for pipeline duty, more than seven years of intensive research devoted to developing the uniflo scavenging principles have gone into producing the TYPE UTC-16. The result is an Angle Gas Engine Compressor that meets the rigid requirements of gas pipeline service with more efficient use of fuel, cooler operation, improved accessibility and longer service life. For further facts about the uniflo TYPE UTC-16 — and proof that here, again, *there's more worth in WORTHINGTON* — contact your nearest Worthington Branch Office or the *Worthington Pump and Machinery Corporation, Engine Division, Buffalo, N. Y.*

*Reg. U. S. Pat. Off. EK.0.1





Automatic Booster Maintains Peakload Pressures For United

UNITED'S FOUR-UNIT, automatic compressor station at Dallas Junction (shown above) was installed to maintain delivery to the Fort Worth area. CHART shows typical 24-hr record at the station for a summer day.

By H. W. EGGER

THE Dallas Junction (Texas) compressor station of United Gas Pipe Line Co. was placed in operation Aug. 19, 1948. Its function is to maintain the required pressure on the Ft. Worth end of the Mineola-Dallas-Ft. Worth line for an adequate supply of gas to Ft. Worth customers. This required pressure is 200 lb at Dallas, but during peak load hours the pressure falls below this point.

Exclusive

Since it would operate only during peak load conditions, a conventional type station was hardly justified. It was decided to install one that would operate automatically and would thus require a minimum of attention.

For this installation, four 300-hp Ingersoll Rand 8-XVG Beaird Packaged Units were selected. Each unit has its own jacket water pump, radiator, fan, and oil filter. Each is equipped with a Fulton Sylphon three-way thermostat valve for controlling jacket water temperature, a water temperature shutdown switch, a low oil-pressure switch, over-speed switch, and pressure-speed control. These safety controls adequately protect the engine against damage in case of trouble. This has been demonstrated in several instances, the most interesting of which was when a connecting rod bolt broke. The resulting drop in oil pressure shut the engine down before the bearing opened enough to do any damage.

Each unit is equipped with three 9¼-in. x 12-in. compressor cylinders, the four units having a total capacity of 2.5 MMcf per hour at 150 lb suction and 200 lb discharge.

All compressor cylinders have two suction and two discharge valves in each end. All suction valves on two of the cylinders are equipped for unloading when set for the maximum discharge pressure desired. Suction valves on one end of the third cylinder are equipped for unloading at a minimum suction pressure of 150 psi, which prevents the engine from overloading should the suction fall below this point.

Special Unloaders

The discharge pressure unloaders were built especially for this installation by Ingersoll Rand Co. as its standard unloader requires about 30 lb differential between discharge and suction pressures for operation. Standard unloaders are placed under the suction valve cover plates while the special unloader is attached to the outside of the

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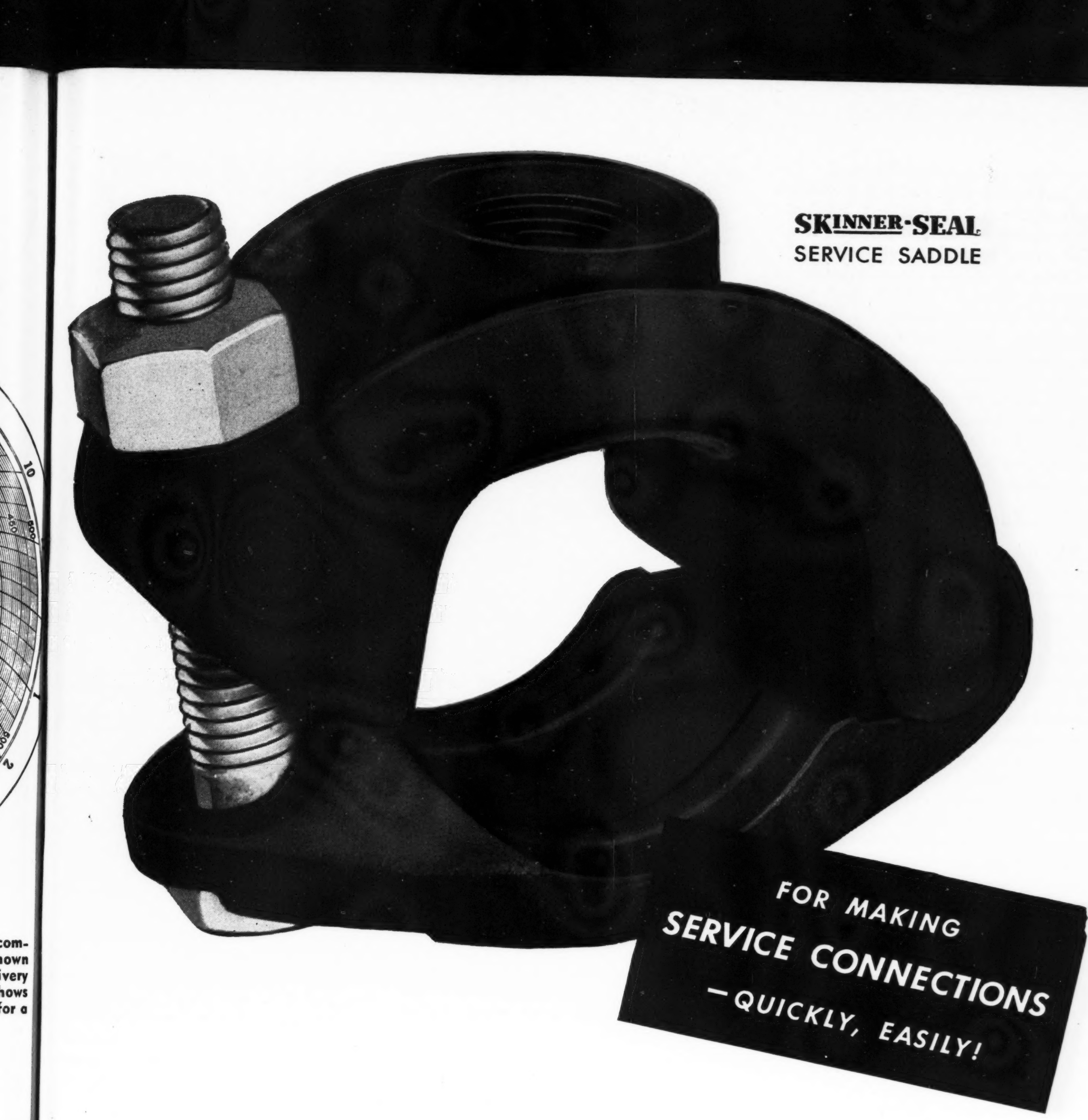
Mr. Egger is general superintendent of the compressor station department, United Gas Pipe Line Co., Shreveport. Photos courtesy *United Gas Log*.



For steel, cast iron and Transite pipe. Single massive bolt simplifies installation. Immediate deliveries from stock.

M. B. SKINNER COMPANY

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SKINNER-SEAL SERVICE SADDLE

cover plate and consists of a small cylinder and piston with rod which extends through the cover plate and holds the suction valve open when pressure is applied to the unloader.

These unloaders are controlled by an Ingersoll Rand Type-UF3 pilot valve assembly which provides for two step unloading. When set for the desired pressures, this valve controls pressure to a U.L. 58 three-way valve which operates to admit 50-lb gas pressure to the unloader. Unloaders operate on opposite ends of the two cylinders simultaneously and the two steps are about 3 lbs apart.

Suction Unloaders

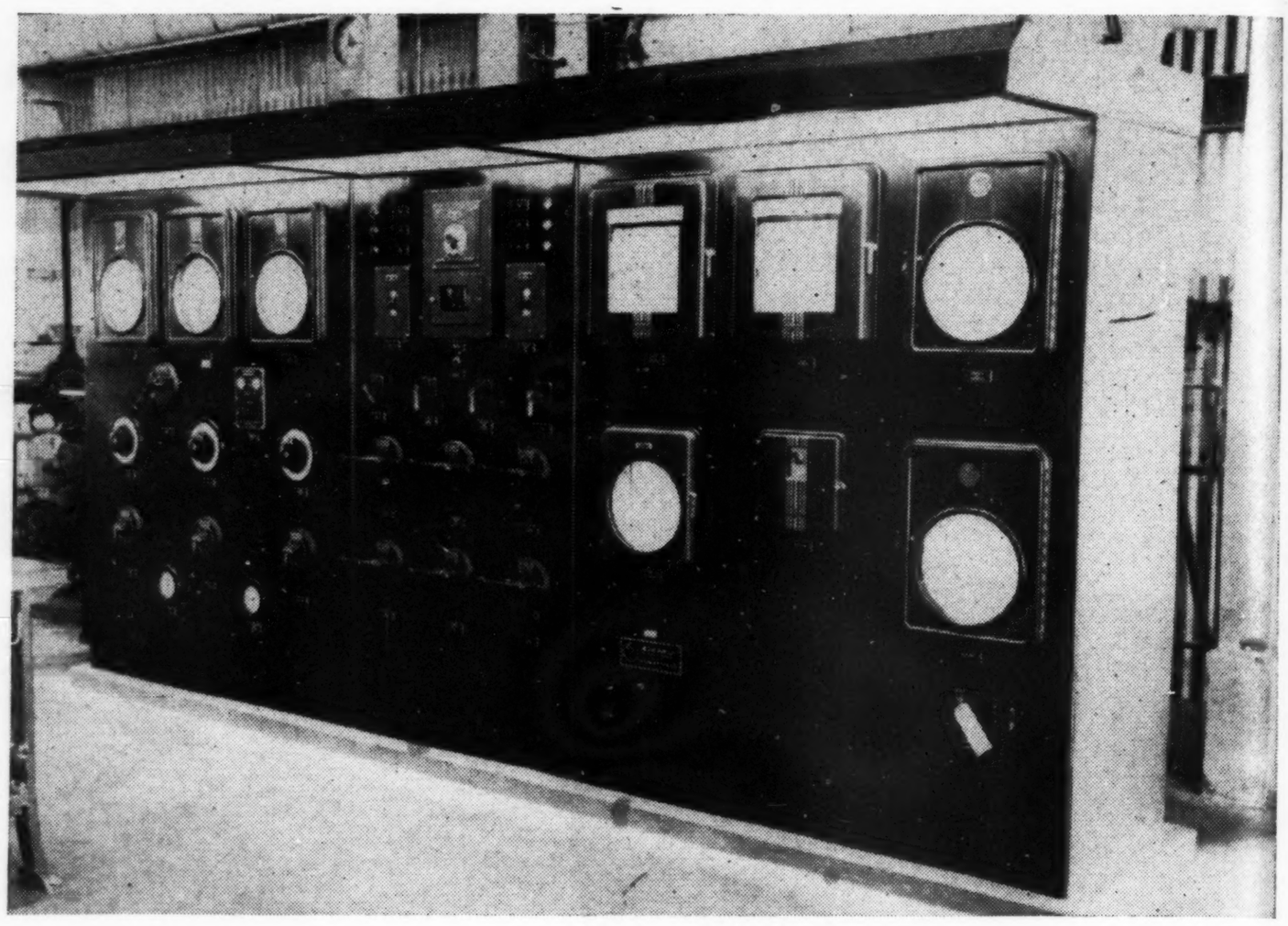
The minimum suction unloaders are operated by a Climax Type-1400 back pressure controller and Type-33 Diaphragm motor valve. When suction pressure drops below 150 lbs this instrument admits discharge pressure to the unloaders and suction valves on one end of the cylinder are held open until the suction pressure rises to 150 lbs. To insure against failure of the unloaders, which would result in excess discharge pressure during the off-peak hours, a Mercoid pressure switch is connected to the discharge header. In case of excess pressure—whatever the cause—this switch closes an electrical circuit and operates a solenoid valve on the fuel supply to the station. This shuts all engines down and allows suction and discharge to equalize through the compressor cylinders. If it is desired to shut the station down about midnight when the load has dropped off, this switch can be set to the desired pressure and the station will be shut down automatically while allowing gas to continue flowing through the compressors.

A typical day's operation is illustrated by the two-pen recording pressure chart as shown. This chart was placed on at 8 a. m., with the pressure starting to drop as the heavy industrial load began coming on. In this instance all units are running at minimum speed and two cylinders on each unit are completely unloaded. The third cylinder is functioning but does not have enough displacement to create a differential since the flow of gas exceeds its capacity.

As the pressure drops to 210 lbs the engines begin speeding up. This is done to increase the cooling water flow and fan speed before the engine begins loading. As the pressure continues to drop, the compressors start loading; and when it reaches 202 lbs all units are loaded and running at full speed. As the load varies through the day the unloaders function to hold the discharge at about 205 lbs. The load begins dropping off about 5 p. m.; and on some days the units unload completely and then partially load again when the lighting load comes on the power plants.

About midnight the load has dropped off again until all units are unloaded. They continue to float on the line at minimum speed until the load comes on again. The Sunday load is never great enough to require operation of the station and it is shut down manually.

All incoming gas is cleaned in a Blaw-Knox oil bath cleaner which remains in service at all times whether the station is operating or shut down.



CONTROL BOARD for operation of the Dallas Junction station is shown in photo above.

Only Two Operators

Air is pulled in from the south side of the building and across the engines by the radiator fan and is exhausted through a short duct and louvers in the north side of the building. Doors are provided in the ducts for recirculating part of the warm air from the radiators in cold weather to control room temperature.

Starting air for the engines is furnished by two 2-stage Ingersoll Rand compressors, one with electric drive and the other with 4-cylinder Wisconsin gas engine. Electric power is supplied by Dallas Power and Light Co.

Two operators perform all the necessary operation and maintenance work in addition to caring for the yard, keeping the station clean, etc. They each work a 40-hour, five-day week, which gives them four days a week together for heavy maintenance work. The station is unattended from 4 p. m. to 8 a. m.

ENGINES and compressors are completely automatic, once they have been serviced and put on the line.

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COVER EVERY PIPE-COATING NEED

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2 Millwrap Enamel
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4 Asbestos Felt
5 Materials for Special Uses

BARRETT* PIPELINE ENAMEL

After more than 20 years' use under the most widely varying conditions, Barrett* Pipeline Enamel has conclusively demonstrated its ability to protect pipe lines against corrosion. When used properly, the need for constant inspection by line walkers is practically eliminated, as far as leaks from corrosion are concerned.

Barrett Pipeline Enamel is reinforced with inert flake minerals which provide toughness and maximum resistance to underground stress effects. It is non-absorbent, and is impermeable by soil waters. Like other Barrett coal-tar enamels, it is practically unaffected by soil composition or bacteria. It can be depended upon to give uniformly satisfactory service under the most punishing conditions of underground service.

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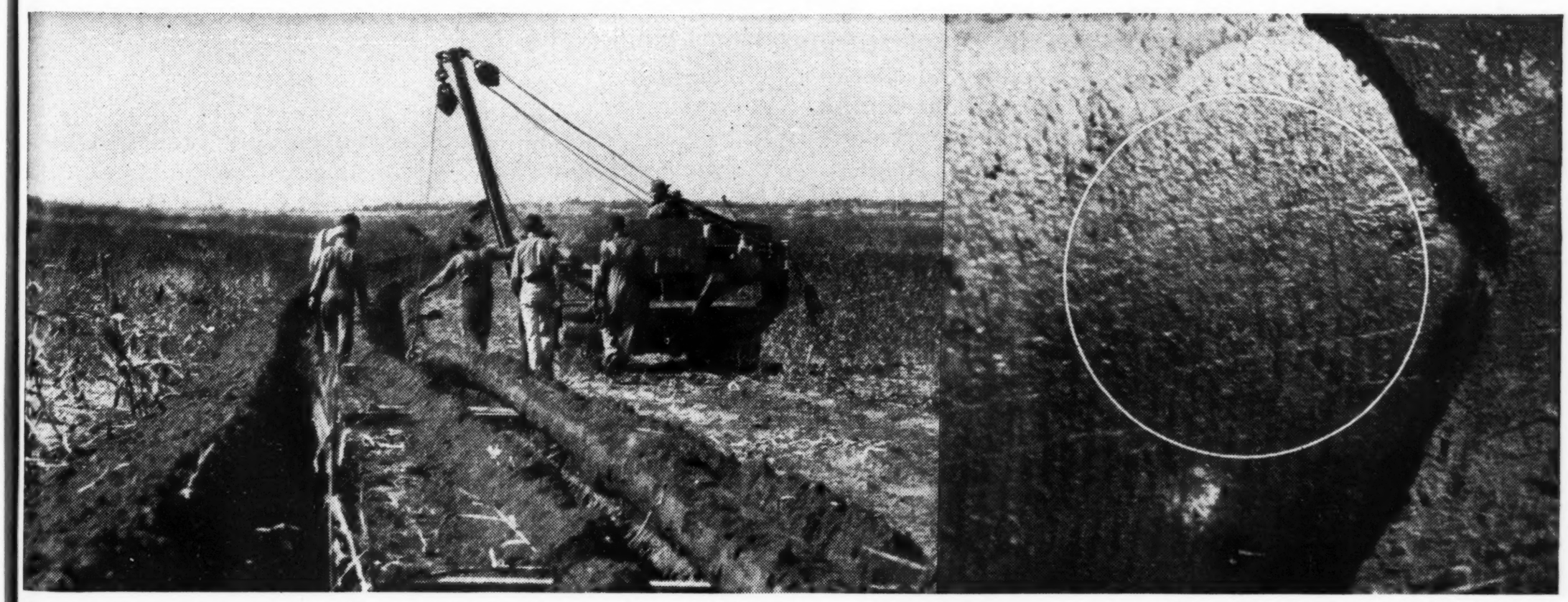

This line was protected in 1927 with Barrett Pipeline Enamel. When taken up for relocation 16 years later, the steel was found to be free from corrosion.

Note how clearly visible the original mill knurl marks are in this unretouched enlargement.

Memo: FOR CORROSION ENGINEERS

Barrett coal-tar materials for special uses are all dependable, durable and economical. Eternium* Paint for exposed metal work. CA-50 Heavy Duty Cold Application coating for concrete and metal exposed to extremely corrosive conditions. Marine Enamel for ships, barges and off-shore service vessels. Service Cement and Pipeline Fabric for field joints — no torching required. Asbestos Pipeline Felt for soil stress shield. Tank Bottom Compound for sour crude storage. 34 YB Paint for exposure to salt water spray conditions.

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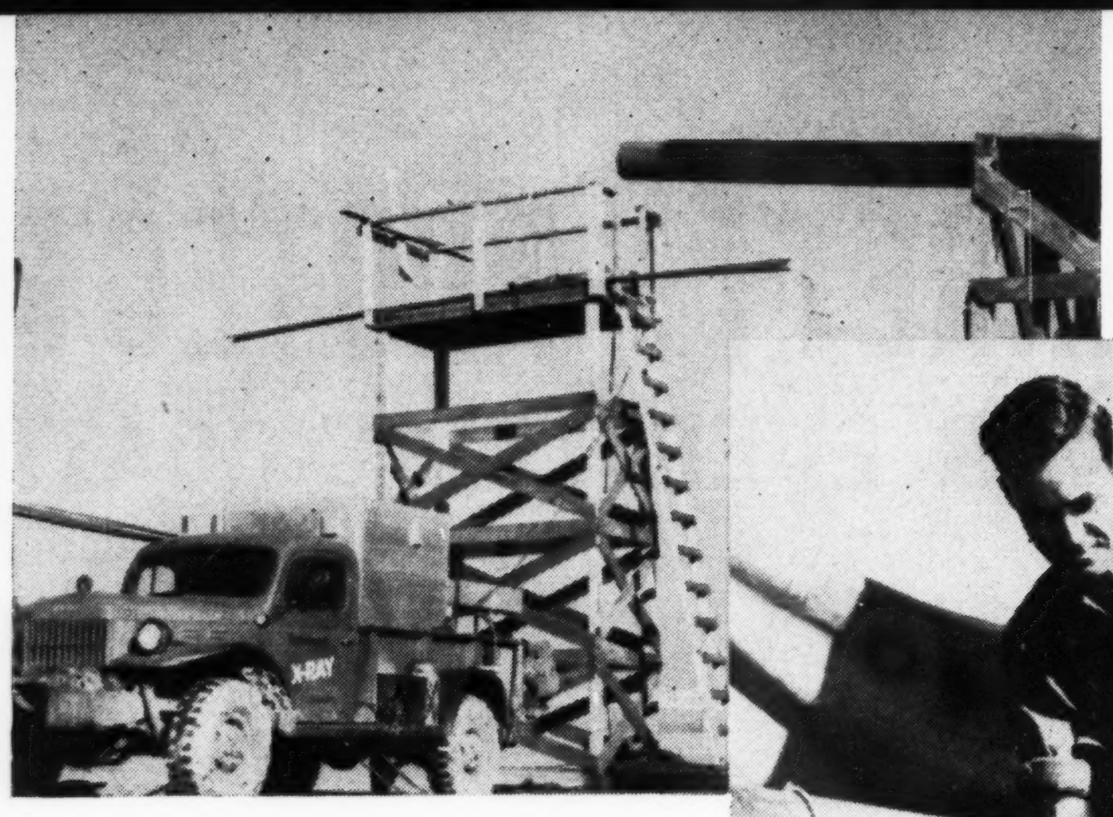


X-Ray on the Mississippi

By R. R. HUGHES

WITH the completion of Texas Gas Transmission Corp.'s Mississippi river crossing, another milestone has been passed in the development of X-ray inspection for pipeline construction. Whereas the Industrial X-Ray Engineers have successfully examined previously, by means of X-ray, the welding on many important submarine crossings as well as several aerial crossings, this Mississippi crossing is, to the writer's knowledge, the first successful attempt to deliver 100% X-ray on a crossing requiring extensive river barge work. The development of this technique fills a long-felt need in this very critical phase of pipeline construction.

Exclusive

Certain problems presented by the necessity of operating entirely from a river barge had to be overcome, and alterations had to be made in conventional methods and equipment. While equipment in use on routine right-of-way construction was fundamentally adaptable, the use of smaller-diameter, heavy-wall pipe involved some changes in X-ray equipment which would not be apparent to the non-technical observer. Also the limited working space available, on the pipelaying barge, made impossible some techniques which are standard procedure on routine X-ray of pipeline welding.

Two things were held to be of paramount importance in X-raying the welded joints of a river crossing of this nature. First, the X-ray work must be conducted in such a manner so as to not interfere with, or delay, the laying contractor in any way. Second, because of the super-critical nature of welded joints placed in the river, it was imperative that the very best quality X-ray negative be obtained so as to gain every bit of information about the welded joint.

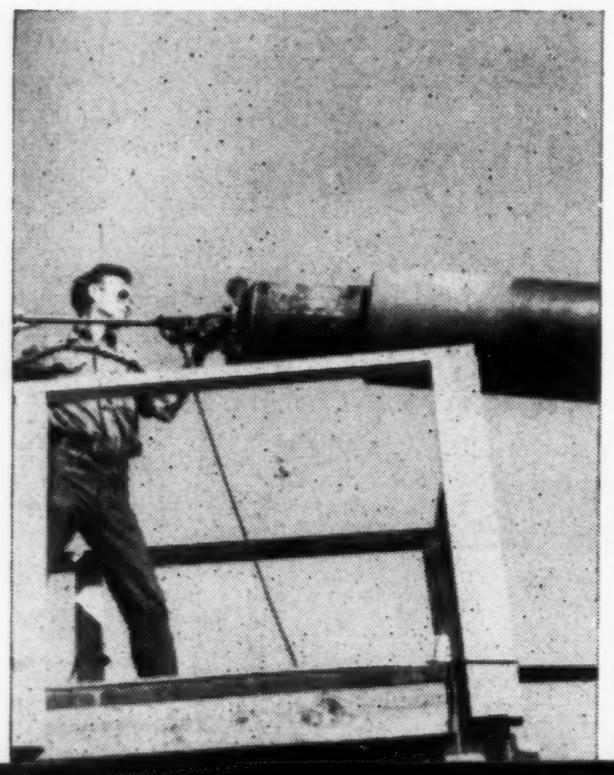
Mr. Hughes is chief engineer, Industrial X-Ray Engineers (Pipeline Division), Tulsa.

To discuss the second objective first:

It might seem that the use of radium, or the gamma-ray method, would be more practical in a situation of this kind, since gamma-ray requires less equipment and is thus easier to handle in limited working space. Consideration of this method was abandoned, however, because gamma-ray delivers a negative of inferior quality. The technical advantages of X-ray in film contrast and sharpness of detail, plus a vastly decreased exposure time, were deemed sufficient to make it worthwhile to develop X-ray equipment and procedures with which to do the job. Accordingly, alterations were made in design and construction of conventional right-of-way equipment to adapt it to the heavy-wall, smaller-diameter pipe.

The primary objective of not interfering with the laying contractor, or causing him any delay, was handled with very little confusion and splendid cooperation developed once the work was under way. For instance, it was found that the actual X-ray exposure could be made while the contractor's crew was allowing time for the weld to cool prior to applying the protective coating. The three-minute exposure time necessary here did not retard other work and, since it was possible to view the negative 15 minutes after exposure, positive information of the quality of the weld was available before the priming coat was dry. With X-ray equipment mounted on a small barge anchored forward of the welding barge, no interference with the contractor's pipe maneuvering and related activities resulted.

Since the pipe was delivered to the laying barge in three joint sections (X-raying of these joints had been done on the bank previously) the multiple line crossing was soon going across the Mississippi at a record rate.



ABOVE, LEFT AND CENTER: X-ray equipment is mounted on barge ahead of welding barge. Use of truck mounting widens possible x-ray applications. INSET: Placing film belt, with asbestos pad, around welded joint.

EXTREME LEFT: Inserting X-ray machine into pipe.

LEFT: Careful scrutiny of negative is made to eliminate defective welding from the river job.

Pipeline Men Call it THE TOUGHEST INCH

The Big Inch and Little Big Inch are much longer. Other pipelines have more "inches" of diameter. But none has been tougher to build than the Columbia Gas System's "Toughest Inch". Rugged men and massive machinery are fighting the mountains and rocks and rivers of West Virginia to lay this giant steel tube from near Charleston, W. Va., to Rockville, Maryland.

The results will be well worth the battle.

When completed next year, this line will help meet the increasing demands for natural gas in the nation's capital. In Baltimore, more than a quarter million families will gain for the first time the advantages of the cleanest, most convenient, most economical of all standard fuels.

This is a rugged project. But it is typical of American engineering, continually working to advance the country's living standards. The Toughest Inch is a typical Columbia Gas System effort, too—characteristic of the natural gas industry's desire to serve more people with more of nature's best and most wanted fuel.

This year, The Columbia Gas System, Inc., Columbia Engineering Corporation and 18 operating subsidiaries will distribute more than 250 billion cubic feet of gas to customers in seven states and the District of Columbia.

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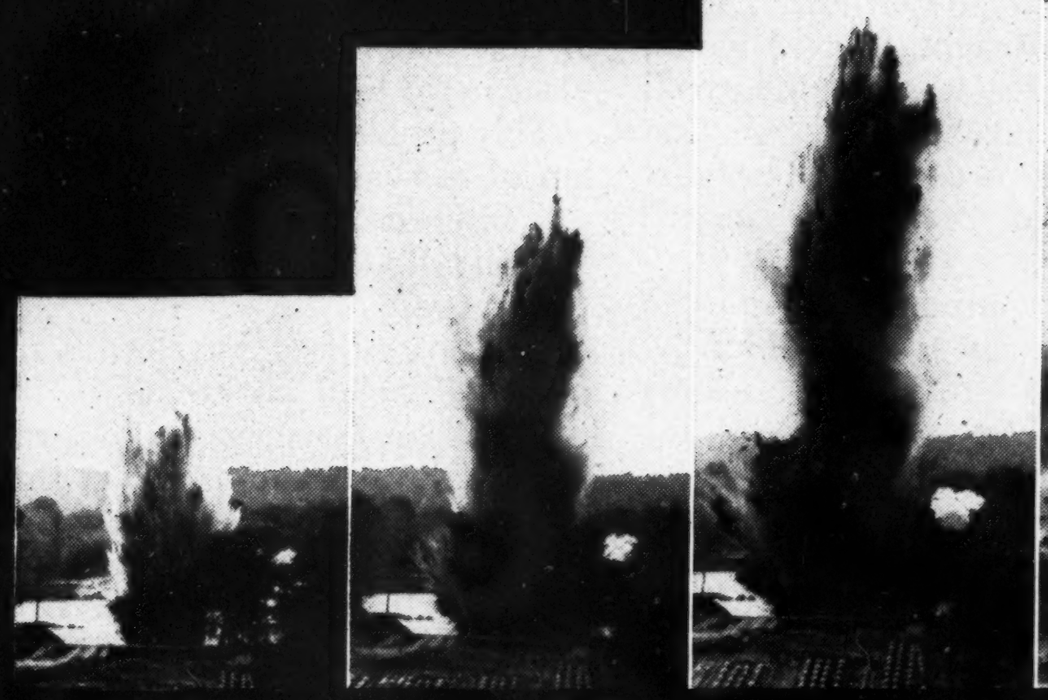


America's Foremost PIPE LINE CONSTRUCTORS

The Common Carrier

The Montana-Dakota case and how it may affect operations on the Biggest Inch and Super Inch

By BILL CLARK

WHEN the application involving the building of a pipeline from San Juan basin (the so-called "four corners area" of Colorado, New Mexico, Utah, and Arizona) to the Arizona-California border comes up for a continuation of its hearing before the FPC in Washington next month, it is due to face an unusual type of intervention—an intervention based on the premise that the pipeline is a common carrier and, as such, must carry gas for *any* qualified company.

Exclusive

The intervenor will be the Interstate Natural Gas Co., a Nevada corporation that claims no blood kinship to the long established company bearing a similar name. While Interstate's application to get its foot in the door had been filed before hearings began Jan. 4, its case could not be heard before the proceedings were recessed to permit El Paso Natural Gas Co., one of the principals, to recheck its reserves standings.

Briefly, what Interstate intends to do is this:

By forcing recognition of the fact that the pipeline is a common carrier, since it crosses public lands, to persuade the Federal Power Commission that a need exists for competitive, additional supplies of gas, with the result that the commission will write "protective provisions" into the certificate of public convenience and necessity which the FPC would issue Pacific Gas & Electric Co., San Francisco, if the line should be approved.

Then, since Interstate contends the El Paso-PG&E line from San Juan, the already approved line being built by the same two companies from the West Texas-New Mexico Permian basin to San Francisco, and the original Texas-California line built more than two years ago by Southern California Gas Co., Southern Counties, and El Paso, are all components of an "integrated" pipeline system, the intervenor would put its own gas into the line in the Permian basin, and take it out at both terminals for direct sales to communities, institutions, and industry.

Should these efforts fail, Interstate would have two alternatives, both involving court procedures and therefore relatively undesirable from the standpoint of the intervenor: To have contracts among the companies declared illegal, as monopolistic, or to obtain a court order based upon a decision of the Eighth Circuit Court of Appeals, dated Aug. 4, 1948. This case, which is the precedent upon which Interstate hangs its case, involved Montana-Dakota Utilities Co. of Minneapolis and Mondakota Gas Co. of Billings, Mont. Of that, more later.

What Interstate Wants

Interstate asks that from 25% to 50% of the capacities of the lines be dedicated to use as common carriers. With the Southern Counties-operated "Biggest Inch" designed to carry 405 MMcf per day, the lower allocation would theoretically permit Interstate to move 100 MMcf per day through the line. Of this, 20% would be sold in Arizona and the remaining 80 MMcf in California. Some of it would be sold right in Los Angeles, according to Interstate, to industrial customers—through SoCal distribution lines, since these are held to be part of the integrated "common carrier" system!

Later on, the company has plans to increase its allotment to 150 MMcf per day through the southern lines, adding another 150 MMcf per day through the northern line for transportation to central and northern California markets. But for the present, Interstate claims to have buyers ready to take the 100 MMcf.

Interstate says it has producing wells tributary to the source of the line which will produce 300 MMcf per day.

Aside from its own self-interests, Interstate claims that a victory in the case would bring twofold benefits—to the customer, in lower prices, and to the producer, in higher prices at the wellhead. Just how this was to be accomplished, while permitting the carriers to earn their allowed maximum, was not explained by the officers to this reporter, although they were positive in their assertions to this effect. The answer, it was inferred, lay in accounting methods.

The company also held that the three California companies would benefit if relieved of the necessity of serving industry at rock-bottom interruptible rates. Furthermore, it was held that there would be no disturbance to the high load factor on which the carriers operate, whereby a balancing out of the load throughout the year helps bear the burden of investment and operating costs of pipelines.

While a discussion of the multiplicity of problems which might arise from a situation such as is posed by this case are beyond the scope of this article, an answer was sought to this question:

Would Southern Counties, as operator of the southern line, be compelled to increase the carrying capacity, or would it be required to decrease the amount of its own gas carried by a volume equal to that which another company might place in the line?

This problem apparently falls in the lap of the carrier company itself. The sole interest of the second company lies in seeing that its own volumes are being transported.

The city of Los Angeles, in registering itself as an intervenor in favor of the pipeline construction program, expressed its opposition to the Interstate plan on the basis that it would not benefit domestic or industrial consumers.

Who is Interstate Natural Gas Co. and by what authority does it seek to intervene?

It had its inception, according to an officer, in the Midwest Holding Co.,

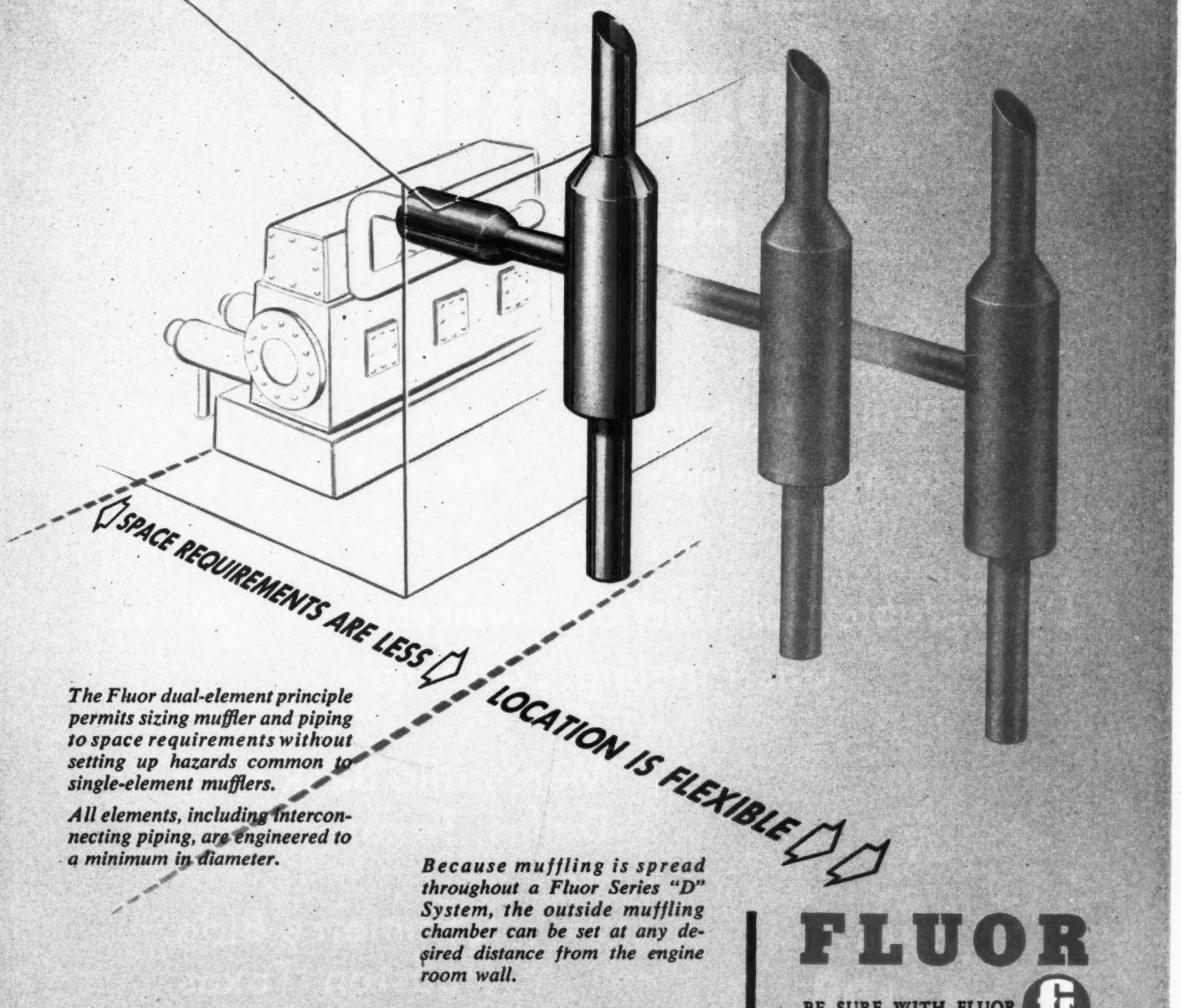
See for yourself...

the installation advantages of a FLUOR SERIES "D" MUFFLER SYSTEM

NO LONGER is ultimate muffling efficiency dependent upon trial-and-error locating of exhaust piping. With the Fluor Series "D," exhaust piping can be of *smaller* diameter, location of outside exhaust chamber *flexible* without affecting pressure drop or noise attenuation and pulsation reduction efficiency.

The reason lies in the unique dual-element design of this muffler *system*. Work is started on pulsative exhaust gases *at* the engine—noise and pulsation reflections are virtually eliminated *at* their source. The Fluor Series "D" Muffler is a *system* that incorporates *two* muffling elements—a primary element located in the immediate proximity of the engine and a secondary element located *at any desired spot* outside the engine room.

The Fluor Series "D" Muffler System is the answer to your muffling problems. In addition to installation flexibility it provides the highest muffling efficiency obtainable—*at a cost competitive with conventional mufflers.*



The Fluor dual-element principle permits sizing muffler and piping to space requirements without setting up hazards common to single-element mufflers.

All elements, including interconnecting piping, are engineered to a minimum in diameter.

Because muffling is spread throughout a Fluor Series "D" System, the outside muffling chamber can be set at any desired distance from the engine room wall.

AVAILABLE FROM STOCK—A Fluor Series "D" Muffler System to fit virtually any 2- or 4-cycle, 200 to 2400 HP diesel engine is available from stock. You need only submit engine room design and dimensions, make, model and RPM of engine and whether muffling system is to be air-cooled or non-air-cooled. Inquiries will be answered promptly.

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formed a number of years ago to hold mineral lands in various areas throughout the midwest, including holdings in the Permian basin. When Interstate was incorporated about two years ago, Midwest turned over to it the holdings in the latter area. President is Henry L. Lubking, an oil operator in Texas and New Mexico, whose address is listed as Ducor, Calif. Spencer Smith of Los Angeles is secretary. H. L. Hutchinson of Sacramento is a vice president and secretary. W. E. Baldy of Carson City, Nev., is resident agent.

But perhaps the key man is John Wright, another vice president, of Billings, Mont., who is also vice president of the Mondakota Gas Co. It was the victory of his company in another common carrier case completed late in 1949 that gives the precedent for Interstate's present action against El Paso and the California companies.

The law under which the court arrived at its decision is the Leasing Act of Feb. 25, 1920, amended by the act of Aug. 21, 1935, which holds pipelines crossing public lands to be common carriers. (In the West, incidentally, public lands are numerous and further development of fields and/or markets from the Rockies west may bring other lines under the force of these same provisions.)

Mr. Wright's story takes up soon after that time.

The Mondakota Story

From 1922 to 1930, the Capital Gas Corp., which he was instrumental in organizing, acquired and developed large gas reserves in eastern Montana, he relates. From 1927 to 1930, Montana-Dakota constructed a pipeline system which Capital asserted was a common carrier, from eastern Montana into North and South Dakota. In 1929, Capital entered into contracts to sell gas to various governmental institutions and to the public at prices 5 cents under existing prices. Sufficient reserves were claimed to justify building a line to Bismarck, N. Dak. Under lease were 500,000 acres, with reserves estimated at 1½ trillion.

Capital planned to have Montana-Dakota transport its gas, but the latter company assertedly failed to file a tariff. There ensued a long running battle between the two companies, which included the issuance of an order to M-D to file a tariff, the filing of a tariff which Capital held to be "unworkable," an order by the Interior Department directing M-D to file another tariff, and then, in 1938, the passage of the Natural Gas Act. After a hearing was scheduled in that year by the FPC, Capital's creditors reportedly forced it into bankruptcy, and the hearing was never held.

In 1940, Mondakota was formed to take over where Capital had left off when it was dissolved. In 1941, Mondakota petitioned FPC for a rehearing on the old "unworkable" tariff set up in 1933; in 1942 hearings were completed and a new tariff was ordered. In 1946 FPC granted Montana-Dakota a rehearing, and the following year re-affirmed its 1942 order, demanding further that workable rates be put into effect and service be effected. M-D then obtained from the Eighth Circuit Court of Appeals a restraining order.

In 1948, Mondakota won its victory. The court handed down a decision upholding the FPC rate order; Montana-Dakota appealed to the Supreme Court, and that body refused to review the case. In 1949, further hearings before the FPC culminated in a final order, dated Sept. 21, and a commencement of transportation service on Nov. 28.

How The Court Ruled

A brief recounting of the chief contentions of the court's review of the FPC orders is enlightening. Of necessity, this treatment is considerably briefed:

M-D first contended that the FPC was without jurisdiction to determine the issues presented. The court cited the Natural Gas Act by way of reply.

M-D held that it was only a public utility company transporting natural gas in interstate commerce to supply its own customers and that it discharged its common carrier duty by buying gas under the unit plan. The court's interpretation of the Leasing Act denied the validity of this claim. It cited the company's willingness to accept common carrier status when it petitioned for right-of-way agreements in 1934.

Montana-Dakota contended that since it had no rates in existence at the beginning of the proceedings, the commission, having only the power to revise existing rates, was out of order. The court found that the company's previous attempts to have the rate demanded withdrawn were unsuccessful, so the rate was held to be an "existing" one.

M-D questioned the validity of tariffs prescribed for its entire system when only a portion of it crossed public lands. The court found that duties as a common carrier do not end at the boundaries of the public lands traversed by the pipeline, but apply to every part of an integrated system.

M-D then contended that the rates were inadequate and confiscatory on nine counts, in that they 1) made no allowance for increased facilities required; 2) would not return the costs upon which they were computed; 3) made inadequate allowance for depreciation; 4) required that storage be provided in the line for the shipper; 5) provided no minimum shipments; 6) required no nominated demand by shipper; 7) included provisions for "determination of billing demand" which would not provide payment by the shipper for his full demand; 8) made improper provision for consolidation of deliveries in computing demands, and 9) made arbitrary and unreasonable provisions for line loss and variation in heat content.

In reply to the first contention, the court held that costs of meters and facilities needed would not be substantial and that latitude to cover these costs was included in the tariff.

The second, third, and fourth points were held to be refuted by the evidence, and the fifth was "without merit."

In its sixth point, that no "nominated demand" was required, the petitioner explained that "the shipper must state the amount of his maximum shipment in any 24 hours, which statement will constitute a maximum limitation on his shipments," so that he might intelligently plan the handling of his own load as a public utility.

The court decided that the order permitted a "reasonable nominated demand."

Billing Demand

In reply to the seventh point, regarding billing demand, the court answered thus:

> The order provides that the charge for transportation service shall be computed monthly at a rate consisting of two factors called a "Demand Charge" and a "Commodity Charge." The demand charge shall be "$1.10 for each 1000 cu ft of billing demand," and the commodity charge shall be "7 cents for each 1000 cu ft of gas delivered." Under the caption "Determination of Billing Demand," the order then provides:
>
> "For the purpose of billing under this rate schedule, the billing demand shall be whichever of the following (a), (b), or (c) is the largest:
>
> "(a) The largest amount of gas delivered in any regular 24-hour metering period during the current billing month.
>
> "(b) 90% of the maximum daily capacity requested in the application for service.
>
> "(c) 90% of the largest amount of gas delivered in any 24-hour period of the preceding 11 months.
>
> "Provided, however, that if deliveries on any day during the billing period were limited by the company in any manner the billing demand shall be the least amount delivered in any such 24-hour metering period during which deliveries are so limited."

Computing the demand charge for one month at the rate provided for a shipper who had requested shipment of 1000 Mcf as his maximum daily capacity the charge will be 1000 times $1.10 or $1100 a month; and 12 times $1100 or $13,200 for a year.

Petitioner assumes two hypothetical cases to illustrate that in practice it might not always receive the reasonable billing charge shown in the foregoing computation. In the case it is assumed that the shipper actually ships a maximum of only 900 Mcf per day for 11 months of the year and 1000 Mcf for one month, in which case the demand

for the year would be only $11,990 instead of $13,200.

In the second illustration it is assumed that if for causes beyond petitioner's control it is required to shut off delivery for one day within any month, the shipper would, under the limiting clause in the order, pay no demand charge for the whole month.

Upon consideration of the rule for determining the billing charge and of the evidence in reference thereto, it is obvious that the formula was designed to return to the petitioner fair and reasonable compensation for its services and to prevent discrimination against shippers. Its fairness was determined in the first instance by consideration of the petitioner's business for the years 1942 and 1943. In its petition for rehearing this same objection was raised and the rule was tested by a study of petitioner's business for the years 1945, 1946, and 1947. Applying such test the commission found that the rule was just and reasonable. Until an actual test of the rate schedule is made showing that it results in some unfairness, the court cannot annul a prescribed rule for applying the rate to deliveries simply because petitioner can conceive a situation which considered in isolation might not return the amount hoped for.

Point eight was held invalid.

The court found, in answering the final objection, that a limitation of 10% on line loss—as provided—was adequate.

It has been established, then, that pipelines crossing public lands must carry gas for any other shipper demanding it.

According to Interstate's interpretation, such a pipeline must carry the gas just as far through its system—even into its distribution lines, practically to the customer's door—as the shipper requires.

And the shipper doesn't even need a certificate of public convenience and necessity!

PIPELINE NEWS

NORTHEAST CASE ON DECK

Hearings open March 7; Algonquin files

Natural gas for New England is now out of the planning stage.

Two principal companies, backed by diverse interests, are now poised for what may prove a lengthy debate over the right to serve the juicy plum that is the Northeastern market.

One day after the FPC had announced its readiness to open hearings March 7 on a consolidation of eight different applications —principally that of Northeastern Gas Co., formal filing of an application by Algonquin Gas Transmission Co., Boston, was revealed. No date was set for commencement of hearings in the latter case.

Northeastern's case was lumped with those of Tennessee Gas Transmission Co. and Transcontinental Gas Pipe Line Corp., its proposed suppliers, together with five others, all involving Tennessee. Three suits, those of Erie Gas Service Co., Inc., Lake Shore Pipe Line Co., and Grand River Gas Transmission Co., would provide for purchase of gas from Tennessee at a connection in western Pennsylvania for transportation and resale in northern Ohio. The seventh case involves New York State Natural Gas Corp.'s request for an extension of its present system and underground storage capacity, and the sale of natural gas to Niagara Mohawk Power Corp. for distribution in Albany. The gas would come from Tennessee Gas.

The eighth case involves Tennessee Gas' request to build a sales meter station in Kanawha county, W. Va., to make 5 MMcf per day sales to Godfrey L. Cabot, Inc.

Northeastern plans to take an ultimate delivery of 350 MMcf per day from extensions of Tennessee Gas' line, which now extends to Buffalo, and Transcontinental's line, which is now under construction from Texas to New York City. (For details, see *GAS*, October 1949, pp. 89-91.)

Algonquin, which has headquarters in Boston and is owned by Eastern Gas & Fuel Associates, New England Gas & Electric Assn., and the Providence (R.I.) Gas Co., would build a $27,549,000 276-mile line from Texas Eastern Transmission Co.'s outlet near Lambertville, N. J., to a point near Boston. The 250 MMcf per day it would receive from Texas Eastern would be resold in Connecticut, Massachusetts, Rhode Island, and New Hampshire; later, the line might be extended to Vermont and Maine.

In addition to the main line, 492 miles of laterals would be built, as well as a compressor station near Middletown, Conn.

Texas Eastern now has an application pending which will permit delivery of the volumes.

Three new buildings to be completed May 1 at the Bradford, Pa., plant of Dresser Manufacturing Div. will improve service to customers and provide space for manufacture of many new products. Among the latter are corrosion shields, special insulating gaskets, and Dresser bonds. Welding sleeves, ells, and other piping products will also be fabricated here.

Mississippi River Fuel Asks New Capacity Increases

An application amendment that would increase capacity of its natural gas system to 375 MMcf daily has been filed with the Federal Power Commission by Mississippi River Fuel Corp. Originally, as filed last September, the corporation's application requested permission to increase capacity to 328 MMcf daily.

The corporation proposes to make the increase by installation of 27,000 hp in seven new compressor stations, and by adding 5000 hp in two previously authorized stations. Reasons for the request for larger capacity: (1) to meet increased demands of present customers, (2) to deliver natural gas for distribution in 29 Arkansas and Missouri communities now without natural gas service, and (3) to connect new customers who will use gas for industrial purposes in Arkansas, Missouri, and Illinois.

Piedmont Hearing Drags On; April 1 Deadline Sought

The Piedmont Natural Gas Co.'s marathon case, which on Feb. 1 had passed its 66th day in court, was still in session in Washington when *GAS* went to press. Officers of the company, which is seeking FPC backing for a $100 million line, have set April 1 as the deadline for completion of the case, as gas purchase contracts with Sun Oil Co., Beaumont, Texas, expire on that date. The company wants to start construction June 1 in order to have the line in the ground before next winter.

Commonwealth Natural Gas Corp., which wants to serve the Virginia market itself, and Tom McGrath, representing coal interests who don't want natural gas in the area, were still fighting the application at every turn.

Concurrently, Piedmont closed a deal to buy 10 manufacturing plants in North Caro-

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Kaiser Steel line pipe to latest API specifications—in diameters up to 30 inches, and in lengths up to 40 feet—is now available. Shipping points are Fontana and Napa, California.

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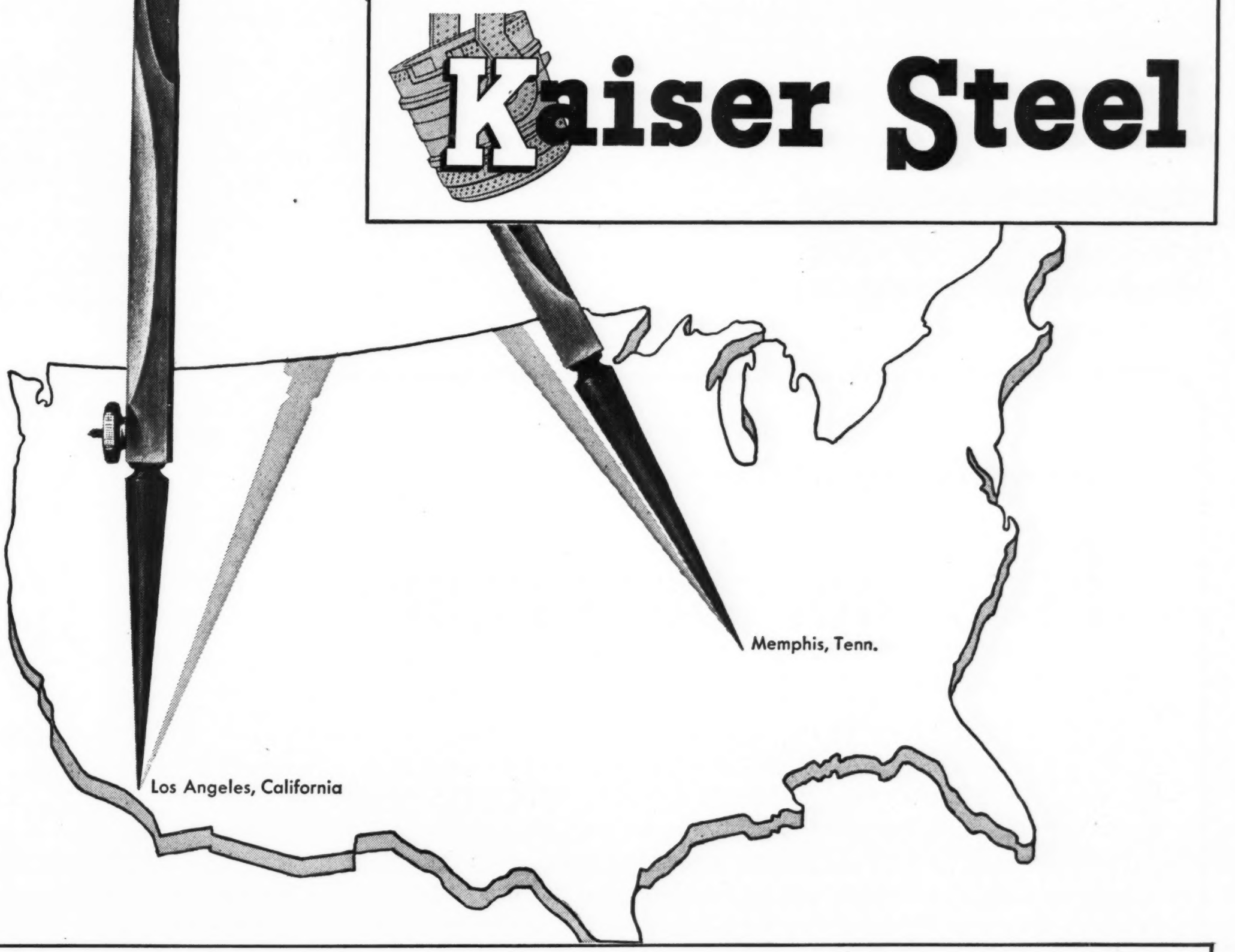

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Type	Diameter	Length	Wall Thickness	Shipping Point
Electric Resistance and Fusion Weld—Plain End	8⅝" to 22" O.D.	Up to 40'	.188" to .500"	Napa, Calif.—Basalt-Kaiser
Electric Resistance Weld—Plain End	$5\frac{9}{16}$" to 12¾" O.D.	Up to 55'	.188" to .400"	Fontana, Calif.
Electric Fusion Weld—Expanded—Plain End	24" to 30" O.D.	Up to 40'	.188" to .500"	Napa, Calif.—Basalt-Kaiser

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—— FREE LITERATURE ——

FISHER RESEARCH LAB., INC.
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lina and South Carolina from Duke Power Co., Charlotte, N. C., in a move calculated to assure rapid expansion of the system and to push sales of natural gas in the area. The sale, involving $5 million, is contingent upon commission approval of the pipeline. Piedmont would take over operation of the plants Nov. 1.

The Piedmont application, filed in August, 1948, proposes to build a 990-mile line from Texas through Louisiana, Mississippi, Alabama, Georgia, and North and South Carolina into Virginia. Principal markets to be served are located in the latter three states. (*GAS,* January 1949, p. 46.)

New York Natural Line Approved by FPC Examiner

An FPC presiding examiner has filed a decision, subject to review, authorizing two New York companies to construct necessary facilities for delivery of additional natural gas to Oswego, Onondaga, Madison, Oneida, and Herkimer counties, New York.

The examiner, Marvin Farrington, gave the preliminary go-ahead to plans of New York Natural Gas Corp. and Niagara Mohawk Power Corp. (which is the surviving corporation in the merger of Central New York Power Corp., New York Power & Light Corp., and Buffalo Niagara Electric Corp.) which will involve an aggregate cost of $924,000. New York State will build a measurement station in Onondaga county and sell and deliver more gas to Niagara Mohawk.

Hearings Under Way In Texas Illinois Case

Texas Illinois Natural Gas Pipeline Co., which is proposing to construct a 1254-mile pipeline from Texas to Illinois, brought its case before the FPC in hearings that commenced Feb. 20.

The company would run a main line from a point southwest of Houston to Joliet, Ill., and smaller lines from Joliet to Volo, Ill., and from Texas to Greenville, Miss., there to connect with proposed facilities of Piedmont Natural Gas Corp. Total cost of the project would be about $121 million.

Texas Illinois will deliver an average of 275 MMcf daily to Piedmont, if it gets FPC okay, which would be used in Piedmont's proposed Texas-Carolina-Virginia pipeline.

In addition, Texas Illinois would, under its application, also supply natural gas to customers of Natural Gas Pipeline Co. of America and Chicago District Pipeline Co.

FPC Opens Hearings In Panhandle-Trunkline Case

FPC hearings on Panhandle Eastern Pipe Line Co. and Trunkline Gas Supply Co. applications to bring Louisiana gas to the Middle West commenced in Washington on Feb. 27.

Under the applications Trunkline would build a 740-mile pipeline from Louisiana to Illinois, to cost $85 million, and to deliver 250 MMcf daily of gas to Panhandle.

On every job, we emphasize

Personal Supervision

LAST YEAR, our policy of emphasizing personal supervision insured the complete satisfaction of our customers on the construction of 562 MILES OF PIPELINES! This same personal supervision is available for your pipe line jobs in 1950. And, in addition, please remember that when TROJAN handles your pipeline construction jobs, you get the full benefit of an organization of experienced personnel, ample equipment and financial stability.

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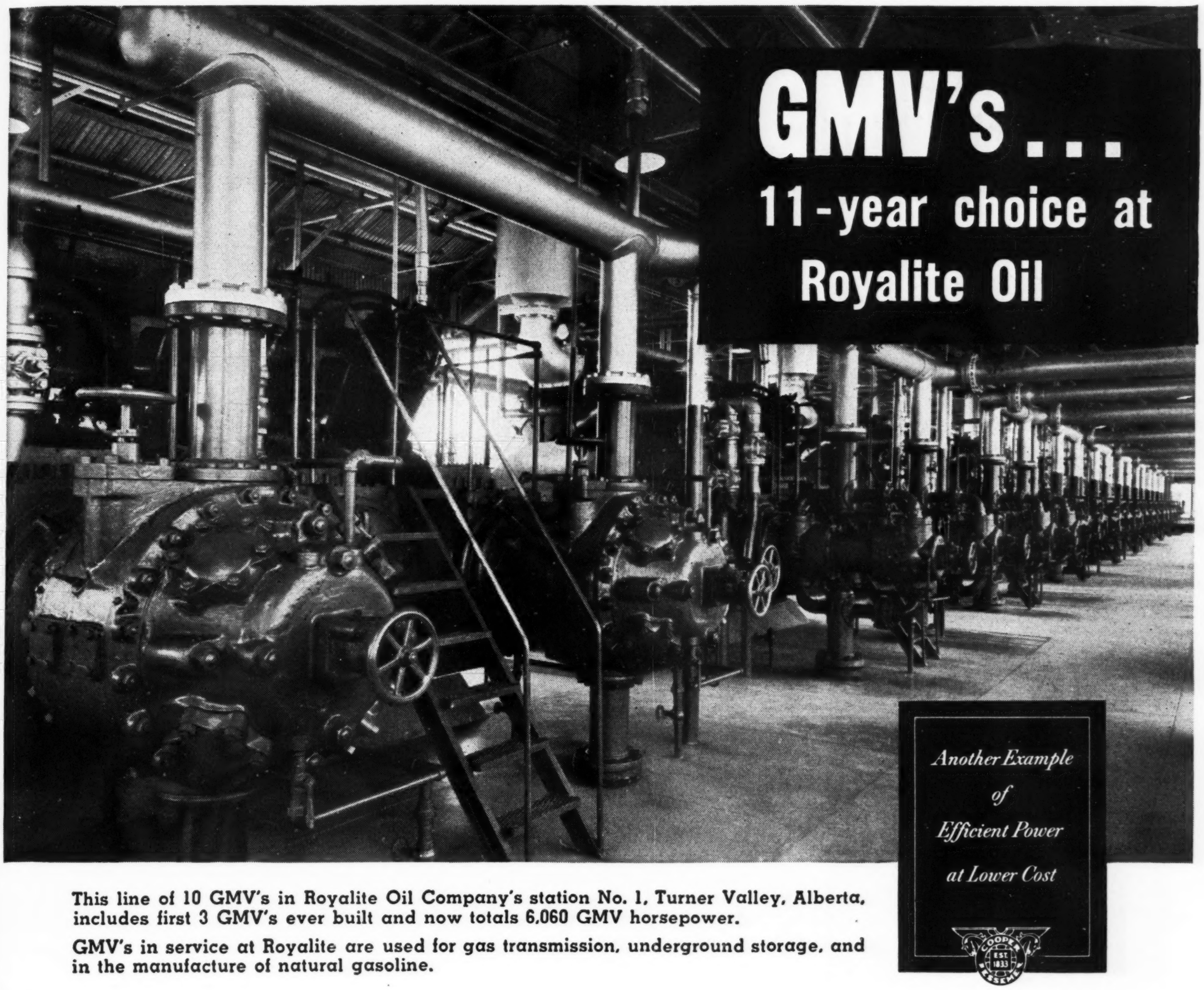

GMV's . . .

11-year choice at Royalite Oil

Another Example of Efficient Power at Lower Cost

This line of 10 GMV's in Royalite Oil Company's station No. 1, Turner Valley, Alberta, includes first 3 GMV's ever built and now totals 6,060 GMV horsepower.

GMV's in service at Royalite are used for gas transmission, underground storage, and in the manufacture of natural gasoline.

Royalite Oil Company's three 11-year-old GMV's, the first ever built, are still in continuous service; have held up so well that visitors can't tell them from the seven since added to this company's No. 1 station. Royalite's other two stations are likewise equipped with Cooper-Bessemer V-angles, Type GMV and the smaller GMX.

The most recent addition to station No. 1* is a GMV Turboflow, installed this past summer. It gives Royalite unprecedented advantages — a full 10% increase in power output compared with other units of equal displacement, plus at least a 15% reduction in fuel consumption.

If your plans call for compressor horsepower, bear in mind that Cooper-Bessemer Turboflow V-angles, GMX, GMV and GMW, are now available in sizes from 200 to 2500 hp. Check on the savings you can show!

*Station No. 1 is now owned by Madison Natural Gas Company, Ltd., a totally owned Royalite subsidiary.

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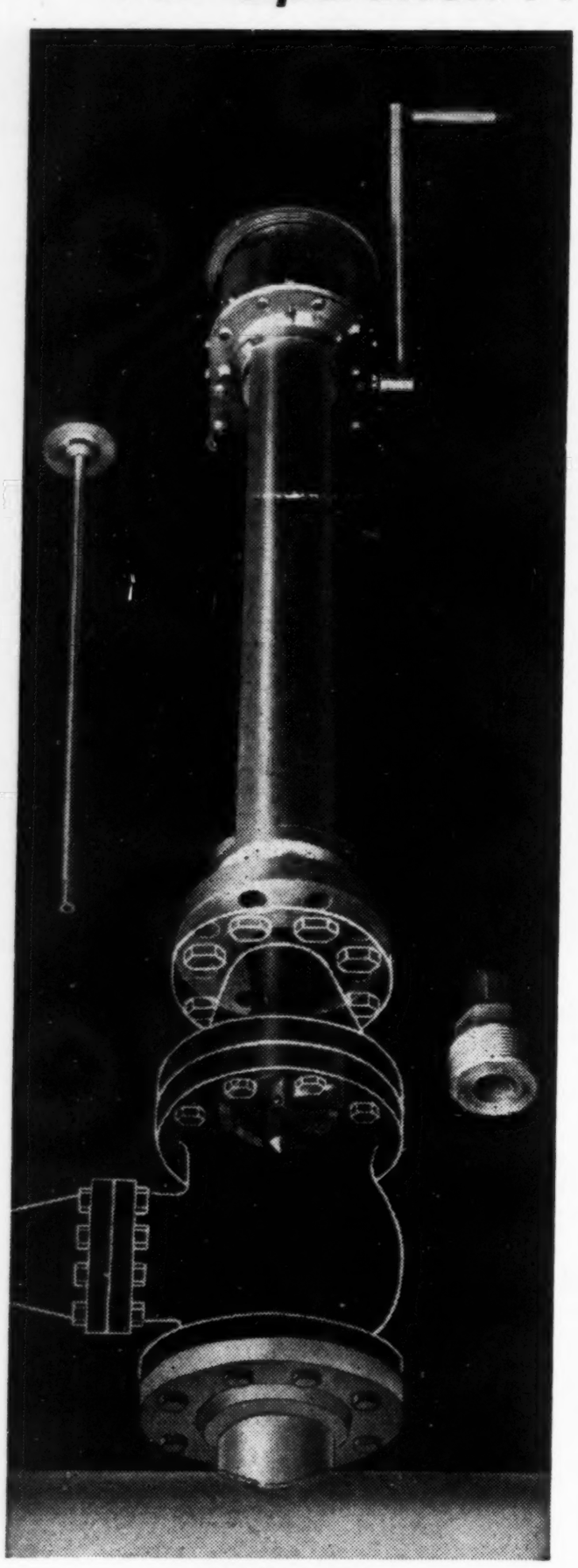

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. . . Against 1000 p.s.i. Line Pressure

Same machine can be operated by either motor or manual power. One machine for tapping and for plugging of tapping nipple. Light weight—100 lb.—and compact.

Nominal cutter sizes 1½" to 4". Ball and roller bearings in all main journals.

MODEL 600 for TAPS UP TO 12"

•Patent No. 2,097,398
Other Patents Pending.

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CLEANS PIPE LINES

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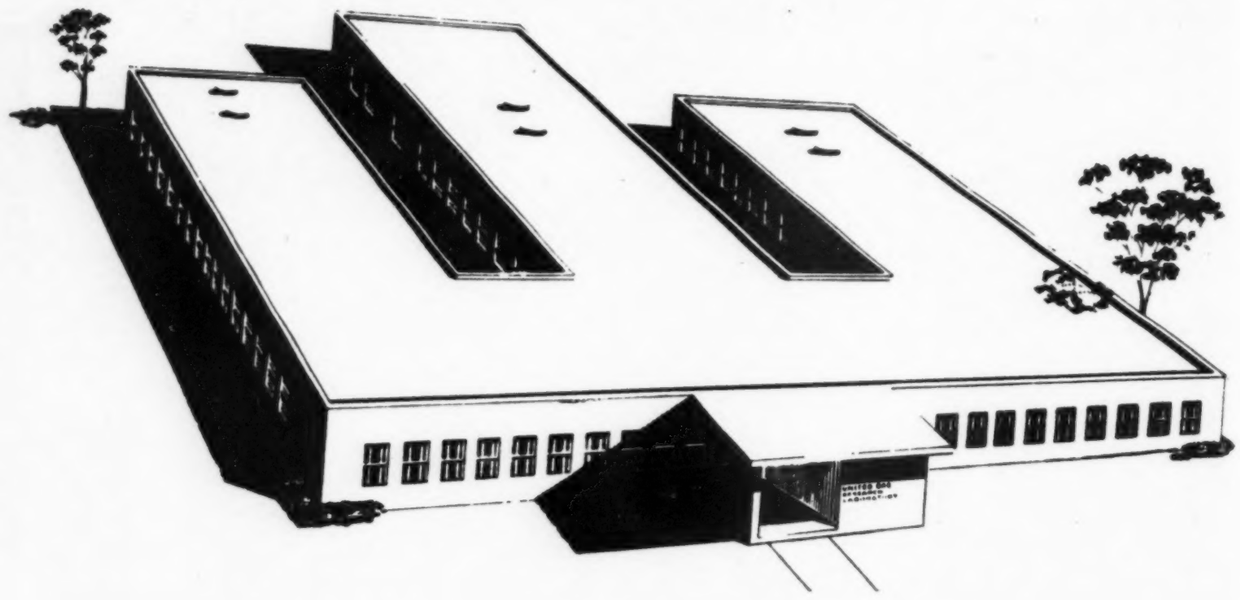


Sometime this spring, United Gas Pipe Line Co. will move its research department into this $325,000 laboratory, located in the Cedar Grove section of Shreveport.

Approximately 50 people will staff the laboratories and offices in the building, which is being erected for the company's corrosion and product engineering departments. Containing 14,500 sq ft of floor space in its "E" shape, the structure will be air-conditioned throughout, and will feature an acoustical tile ceiling.

Here oil and gas production and pipeline operational problems will be studied, and new methods of improving natural gas service and dependability will be tested. Pilot plants to complement the work may be built later. Research sections include electronics, chemistry, physics, pressure, volume and temperature, and chemical engineering and development.

Panhandle would build 170 miles of pipeline and install 16,000 hp in compressor stations. The Panhandle facilities would be located in Illinois, Indiana, and Michigan, and would cost an estimated $14,689,500. The proposed facilities are necessary to make available additional quantities of gas for Panhandle's present customers, the City of Indianapolis, and others.

Trunkline's application, submitted last November, replaced one filed last April, in which the company requested an okay to build a 711-mile line from Louisiana to Palmyra, Neb. That line was dropped when Northern Natural Gas Co., prospective buyers of the gas to be transmitted, refused to purchase it from Trunkline.

Pipeline Notes

Formation of Taylor Forge & Pipe Works of Canada Ltd. has been announced by the parent firm, Taylor Pipe & Forge Works, Chicago. The sixth plant of the U. S. company, to be operated by the new subsidiary, will be located at Hamilton, Ont. The Hamilton plant will be designed and built to suit the intended manufacturing of Taylor Forge products, and will be staffed by Canadian personnel . . . Fin-Ker Oil & Gas Production Co., which owned 42,000 developed acres and 8000 undeveloped acres of gas leases in the Hugoton field and sold its full production to Kansas-Nebraska Natural Gas Co. Inc., has been acquired by Kearney Gas Production Co. and Deerfield Gas Production Co. . . . The greatly expanded facilities at the Eutectic Welding Alloys Corp. plant and welding institute was opened to students on Feb. 13, when the company started a new series of its training programs. The course is designed for experienced welders and includes practical training in arc and torch welding. . . .

. . . Cities Service Gas Co., Oklahoma City, reports that for the first time in the operating history of the company, inputs of natural gas to the system exceeded 1 billion cu ft on Jan. 3. Total input for the day was approximately 1,011,342 Mcf.

Progress Reports

Winter weather brought most pipeline projects to a standstill in January, but about a dozen scattered projects were making progress.

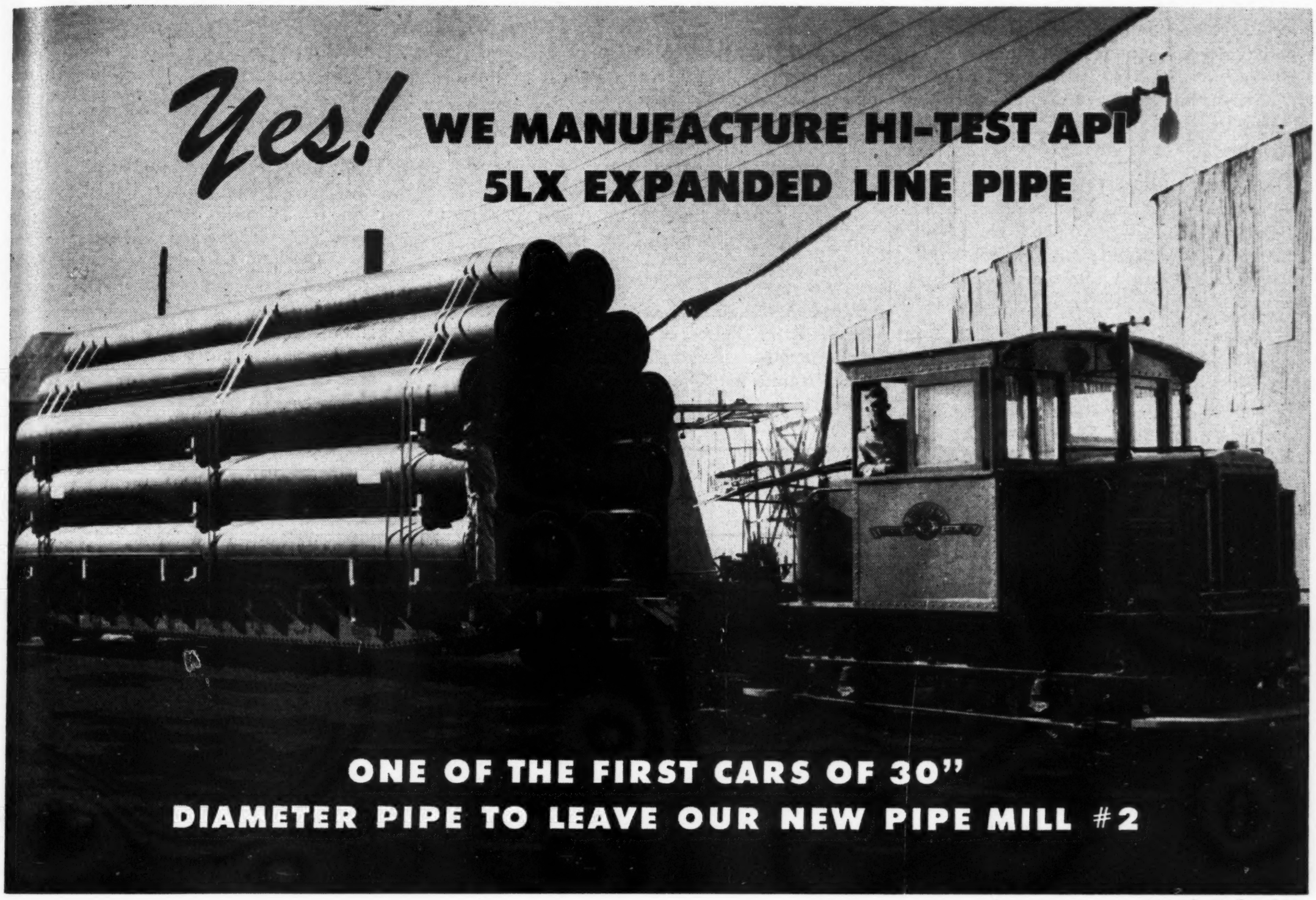
JERSEY CENTRAL POWER & LIGHT CO., Asbury Park, N. J., has Thomas Proctor Inc., Long Branch, at work on 40 miles of 10-in. line from Franklin township connecting with the Big Inch to Long Branch. Completion is expected by June 1.

PACIFIC GAS & ELECTRIC CO., San Francisco, has Bechtel-Price-Conyes at work on its 506-mile, 34-in. main line from Topock, Ariz., to Milpitas, Calif. Stringing and trenching are in progress northward from Topock with R. L. Bowman as general superintendent.

TEXAS EASTERN TRANSMISSION CORP., Shreveport, laid 11 miles of its 33-mile, 26-in. line from Fayette county, Ohio, to Lebanon, Ohio. Associated Pipe Line Contractors, Houston, had the contract for the job, which was to be completed by March 1.

CENTRAL HUDSON GAS & ELECTRIC CORP., Poughkeepsie, N. Y., has awarded a contract for its 40-mile, 10-in. line from Tuxedo, N. Y., to Poughkeepsie to Britton Contracting Co. Inc. of Washington, Pa. The line will carry Texas gas from the Home Gas Co. line to Highland on the west bank of the Hudson and from there the contractor will lay two 8-in. lines under the river to Poughkeepsie. Completion is scheduled by Aug. 1.

ALABAMA TENNESSEE NATURAL GAS



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Co., Florence, Ala., which has laid an 80-mile, 10-in. line to Muscle Shoals to serve Reynolds Alloys Co., will let a contract soon to lay an 8-in. line on to Decatur and Huntsville, Ala. Lehman-Hoge & Scott contracted the 80-mile line. Florence, Sheffield, and Tuscumbia, Ala., will be served.

ARKANSAS LOUISIANA GAS CO., Shreveport, was running into bad weather on its 163-mile, 20-in. line from Waskom, Texas, to Malvern, Ark. Henderson Brothers Construction Co., Houston, and Omaha (Neb.) Dredge & Dock Co. are the contractors.

EL PASO NATURAL GAS CO. reported progress in the 30 days up to Feb. 10 as 50 miles on Spread 1, 20 miles on Spread 2, and 35 miles on Spread 3 along its 800-mile, 30-in. loop from Jal, N. Mex., to Topock, Ariz., which will carry gas to Pacific Gas & Electric Co., San Francisco. Spread 1 is at Benson, Ariz., Spread 2 at Carlsbad, N. Mex., and Spread 3 at Casa Grande, Ariz. The company expected to lay another 130 miles in the next 30 days.

TEXAS GAS TRANSMISSION CORP., Owensboro, Ky., completed on Feb. 3 the final gap in the 711-mile, 26-in. line from Sharon, La., to Middletown, Ohio. First deliveries of gas started Feb. 9 from the Lisbon supply connection at Sharon to Texas Eastern at the Middletown connection. Only remaining section is the Carthage to Sharon 20-in. line. Despite 26 days of rain in January, four crews completed 43 miles to Feb. 9. Twenty miles are still to be completed. N. A. Saigh Co. and Oklahoma Contracting Corp., Dallas, have contracts.

PLAINS NATURAL GAS CO. reports 50% completion on its gathering system at Liberal, Kan. Midwestern Constructors Inc., Tulsa, is building 80 miles of 4-in. and 24-in. line.

TRANSCONTINENTAL GAS PIPE LINE CORP., Houston, has Midwestern Constructors Inc. at work on Sections 4 and 5, 216 miles of 30-in. line from Demopolis, Ala., to Newnan, Ga. M. T. Wilhite is directing operations which are now complete with the exception of river crossings and meter settings. R. H. Fulton & Co. is building 202 miles of 30-in. in North and South Carolina and Virginia with one spread set up at Spartanburg, S. C., to date. Parkhill Truck Co., under Smith Contracting Corp., is working on 200 miles of 30-in. line from the North Carolina-Virginia border to the Potomac river. Stringing has just started on this section with approximately 60 miles of pipe unloaded.

NORTHERN NATURAL GAS CO., Omaha, has Midwestern Constructors Inc. at work on Section 6, 43 miles of 26-in. line from Palmyra, Neb., to Oakland, Iowa, and Section 7, 66 miles of 26-in. northeastward from Oakland. R. H. Fulton's portion of the contract is for 222 miles of 26-in. in Texas, Oklahoma, and Kansas; 155 miles of 20-in. in Kansas; and 50 miles of 20- and 24-in. in Kansas. Fulton has only started on the 50 miles of 20- and 24-in.

Pipeline People

H. P. Fogle
... pipeprotection

L. B. Wilson
... Dowell

J. E. Allison
... Texas Gas

A. M. Boehm
... Worthington

H. P. FOGLE has joined Standard Pipeprotection Inc., St. Louis, as manager of sales for the southwest area with headquarters at Houston. Mr. Fogle has been associated with the petroleum and natural gas industries for many years, most recently as assistant division manager for Oil Well Supply Co., Houston.

L. B. WILSON, development engineer for Dowell Inc. (Tulsa) in New York City, has been promoted to general sales engineer. The New York office has been part of Dowell's Philadelphia district, but it has now been placed under the auspices of the general sales department in Tulsa. Mr. Wilson has served successively as industrial, sales, and development engineer.

E. E. VAN LANINGHAM has retired from Cities Service Gas Co., Oklahoma City, after 44 years of service. His most recent position was superintendent of the Matfield compressor station near Emporia, Kan. B. C. ADAMS JR., since 1944 a member of the Cities Service executive operating staff in Oklahoma City and a member of the board, has resigned to accept a position with Trunkline Gas Supply Co. A new member of the company's board of directors is E. K. HARTZELL, assistant to the president. He joined Cities Service Gas in 1945.

HARRY E. LEWIS has been appointed assistant comptroller of Worthington Pump & Machinery Corp., Harrison, N. J., succeeding the late Joseph A. Schallenberg. Mr. Lewis joined the firm in 1924, served as comptroller of the Wellsville works, and as works comptroller at Holyoke.

JAMES E. ALLISON has been named assistant superintendent of pipelines for Divisions 1 and 2 of the Texas Gas Transmission Corp., Shreveport. Mr. Allison, who joined the company in 1948 as a construction engineer for the Texas-Ohio line, was formerly pipeline superintendent for Modern Welding Co., Owensboro, Ky. FRANK R. BAKER has joined Texas Gas as supervisor of advalorem taxes, the firm also announced.

A. M. BOEHM has been appointed eastern manager, engine division, Worthington Pump & Machinery Corp., Harrison, N. J. Mr. Boehm will handle sales negotiations for gas and oil pipeline equipment and gas and oil engines for all services. He has served Worthington for 25 years as an engine sales specialist assigned to various district offices. Mr. Boehm succeeds W. L. RUSSELL, who has been assigned to handle Canadian sales for the John Inglis Co., Worthington's Canadian associate.

T. A. HESTER has been named president of the reorganized Oklahoma Contracting Co. Inc., Dallas, now known as the Oklahoma Contracting Corp. Other officers are T. R. JONES, PAUL R. HALBERT, M. W. STAPLES, J. R. HORRIGAN, BEN O. LAW, and W. H. LAW. All the new officers have long been connected with the oil and gas pipeline construction business. Offices will be maintained in the Mercantile Bank Bldg., Dallas, and the Commerce Bldg., Houston. R. J. O'CONNELL and N. K. McFARLAND, officers of the former Oklahoma Contracting Co. Inc., are now associated as partners in the Jones Simpson Drilling Co.

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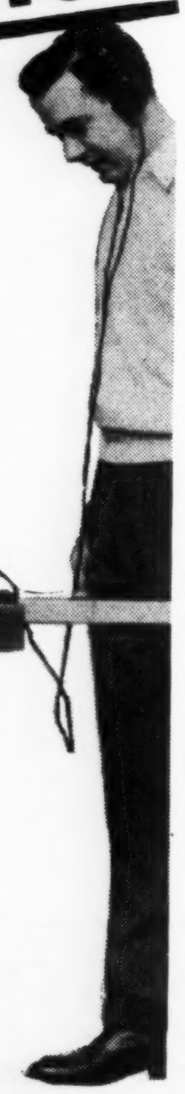
PIPE LOCATOR



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